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UNIVERSITY OF ALBERTA

THE ACTIVATION AND ATTENUATION OF LINGUISTIC EFFECTS ON PERSON COGNITION

BY

IVY YEE-MAN LAU ©

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF PSYCHOLOGY

EDMONTON, ALBERTA
FALL, 1993

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled THE ACTIVATION AND ATTENUATION OF LINGUISTIC EFFECTS ON PERSON COGNITION submitted by Ivy Yee-Man Lau in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Date: 1st October 1993

In memory
of
Stanley

Abstract

This study examined some of the conditions under which linguistic effects on people's impressions of and memory for other individuals are activated, maintained, and attenuated. Two pairs of parallel English- and Chinese-language person descriptions were created. The first pair described a character exemplifying a personality type with a readily available label in English but not in Chinese, and a character exemplifying a personality type with a readily available label in Chinese but not in English. The second pair described each character also behaving in ways atypical of the personality type previously exemplified. Three groups of subjects, each processing the information in either English or Chinese (English monolinguals, Chinese-English bilinguals randomly assigned to use English, and Chinese-English bilinguals randomly assigned to use Chinese), read the first pair of descriptions and were asked to make a number of inferences about each character's behavior. Before reading the second pair of descriptions and making a further set of inferences, some subjects within each language-of-processing group were asked to mentally prepare for a videotaped discussion of their research participation experience (the *busy* condition) or led to expect that they would later have to justify their impressions of the characters (the *accountable* condition). Based on previous research (e.g., Hoffman, Lau, & Johnson, 1986), it was expected that the first pair of descriptions would activate language-specific personality schemas and lead subjects using different languages of processing to form different impressions of the characters. It was further hypothesized that when subjects received additional, schema-incongruent information about the character to whom the language-specific personality schema had been applied, those who were not cognitively busy and were motivated to form accurate impressions (the accountable condition) would process the additional information more thoroughly and consequently show greater adjustment of their language-specific initial impressions of the character in question. The hypothesis was generally supported. Accountable subjects, although demonstrating the expected linguistic effect on inference after reading the first descriptions of the characters, showed little if any such effect after reading the second descriptions. Busy subjects, in contrast, continued to show a strong effect of language on inference. The results are discussed in relation to the interaction between language, schematic processing, and cognitive busyness.

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The Linguistic Relativity Hypothesis

Because thinking and language are two of the most basic human activities, it is not surprising that commonsense theories regarding their functioning abound. However, what exactly is the relation between these two aspects of mental life? Most would agree that thought and perception obviously influence language. What people see and hear contributes to the development of the lexicon, and one's thoughts clearly influence what one says. However, is the converse true? Does language influence thought and perception?

Arguments dating back at least to the 18th century suggest that language is more than just a tool for expressing thought. Johann Gottfried von Herder, an 18th century German philosopher, argued that because people come to know ideas through language, its characteristics help to shape experience for its speakers; thus, language is closely tied to a culture's character (Code, 1980). Other 18th and early 19th century German thinkers, such as Johann Georg Hamann and Wilhelm von Humboldt, also insisted that language is not merely a vehicle for the expression of thought; instead, thought and language are mutually interdependent (Stam, 1980). It was Benjamin Lee Whorf, however, who by using comparative linguistic and anthropological data as the basis for his arguments, raised the possibility that the relation between linguistic and nonlinguistic behavior could be studied objectively.

As a linguist interested in native American languages, Whorf (1956) argued that the differences between the native languages he investigated and the Indo-European languages (of which English is one) exemplify the important role that language plays in mental life. Whorf contended that, to some extent, the basis for thought is not objective experience, which would be the same for all observers, but instead is the language one speaks. The lexicon and the grammatical structure of a language form a framework in terms of which its speakers understand and conceptualize the world. Thus, speakers of different languages think about the world in different (yet equally valid) ways.

The lexicon of a language provides its speakers with a means of classifying experience. For example, Hopi has one noun, *masa'ytaka*, that covers everything that flies (e.g., insect, airplane, pilot, with the exception of birds, which are denoted by another noun), but has two nouns for water (*pāhe* denotes water that moves and/or is found in nature, *keyi* denotes water contained in vessels). While the Hopi's classification of flying entities may seem too general to speakers of languages such as English, in which insect, airplane, and pilot belong to different categories, its treatment of water is more differentiated than that of English and most other languages. According to Whorf, no language's classification system is generally more, or less, valid than that of others.

Whorf also argued that the grammar of a language exerts a significant influence on thought. According to Whorf, each language obliges its speakers to classify and structure the world in terms of the specific set of overt and covert categories embodied by its grammatical structure. An overt category is distinguished by a formal mark which is almost always present in a sentence containing a category member. The gender distinction, for example, is an overt category in Latin. Latin speakers are obliged to classify both people and objects in terms of gender in order to correctly add *-us* to masculine nouns, *-a* to feminine nouns, and *-um* to neuter nouns. No overt gender distinction is found in languages such as Chinese, however. Chinese speakers, therefore, need not habitually attend to gender in the way that Latin speakers must. Another example concerns the dimension of time. This dimension is divided into a past, a present, and a future in English, and in order to conform to the system of English verb tenses, the speaker must always classify an event in terms of time of occurrence. Hopi verb forms, however, make no overt reference to "time" as conceptualized in English; events either are accessible to the senses or exist in the mind. It is, therefore, not necessary for the Hopi speaker to think of events in terms of the tripartite segmentation of time so prevalent and important in English.

A covert category, on the other hand, "is marked . . . only in certain types of sentence and not in every sentence in which a word or element belonging to the category occurs. The class-membership of the word is not apparent until there is a question of using it or referring to it in one of these special types of sentence, and then we find that this word belongs to a class requiring some sort of distinctive treatment" (Whorf, 1956, p. 89). Thus the influence of covert categories is more subtle (but no less important) than that of overt categories. The classification system for Navaho nouns referring to inanimate objects is a covert one based upon shape (e.g., long, round) and other physical attributes (e.g., flexibility). Members of different classes are not marked directly, as for gender in Latin or tense in English. Membership is indicated only by the use of different forms of "verbs of handling" depending on whether the sentence subject or object is "long and rigid," "flat and flexible," etc. For example, when asking someone to hand over an object, *šańléh* is used for a long flexible object (e.g., a piece of string), *šańtį́į́h* for a long rigid object (e.g., a stick), and *šańitcóós* for a flat flexible material (e.g., cloth). These covert categories also include instances whose "shapes" are not physical and observable but imaginary. For example, "sorrow" belongs in the "round" class.

Whorf argued that even though the "linkage-bond" between objects of different physical and imaginary shapes in this Navaho system is not overtly marked or stated explicitly, Navaho speakers nonetheless have an "intuitive awareness" (which Whorf distinguished from conscious awareness) of these classes which is not shared by people unacquainted with the language. Speakers of languages that lack these covert categories, such as English, would presumably classify and think about objects differently. When a Navaho speaker and an English speaker are presented with a new object, one that does not have a name in either language, each person would classify it, probably differently, according to the system made available by their respective language. Furthermore, covert category membership reflects objective differences in some cases but not others, as in the case of "sorrow" being "round." Covert categories, therefore, are grammatical categories that represent "experience seen in terms of a definite linguistic scheme, not experience that is the same for all observers" (Whorf, 1956, p. 92).

Whorf reasoned that since different languages have different overt and covert categories, they therefore direct their speakers to *habitually* pay attention to different aspects of the environment and structure their experiences in ways specific to those languages. Whorf (1956) stated that

> We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds--and this means largely by the linguistic systems in our minds. . . . We are thus introduced to a new principle of relativity, which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated. (pp. 213-214)

In support of his argument, Whorf cited a number of examples in which language exerts an important influence over nonlinguistic behavior. As a fire investigator for an insurance company, Whorf (1956) documented numerous instances in which the cause of fire was dangerous behavior (e.g., smoking around "empty" gasoline drums containing explosive vapor) due to a specific conceptualization suggested by the linguistic meaning of the name of the situation (e.g., because the drums are "empty" they therefore contain nothing, not even vapor).

Besides behavior specific to certain situations, Whorf suggested that the large-scale grammatical structure of a language can also influence general behavioral patterns. Whorf noted that the application of plurality and numeration in Indo-European languages is rather peculiar. Not only are plurality and cardinal numbers used for perceptible spatial aggregates (e.g., 10 persons), they are also applied to metaphorical aggregates (e.g., 10 days). Whereas 10 persons can be objectively perceived as a group, 10 days cannot be objectively perceived as a group because people can only experience today; the other 9 days exist only in memory or in imagination. The essence of time, a *process* of "becoming later and later" (Whorf, 1956, p. 139), is lost when Indo-European languages treat "time" in terms of discrete entities that can be counted like persons or bottles. The linguistic situation is different in Hopi. Plurals and cardinals are used only for individual entities that can form objective groups. Time is counted by ordinals. For example, rather than "he stayed ten days," the situation as described in Hopi is "he stayed until the eleventh day," in which "day" is not a noun but belongs to the class of "tensors," which denote intensity, tendency, duration, and sequence, the same pattern used to count successive reappearances of the same entity (such as reappearances of the same man). Whorf noted that the treatment of time as continuous and not as separable distinct segments is found in both Hopi grammar and behavior. If one wants to please a guest who revisits from time to time, one would try to entertain that guest the best one can during the guest's current visit and prepare beforehand for the next visit. Whorf pointed out that Hopis deal with the future in the same way--by working within a present situation which is expected to impact the future event of interest. Thus, this attitude promotes the Hopi's emphasis on preparation, which includes announcing and getting ready for events well beforehand, elaborate precautions to insure persistence of desired conditions, and stress on good will as the precursor of right results. It should be noted, however, that Whorf did not argue for a one-to-one correspondence between the linguistic and behavioral patterns. His discussion of the Hopi's often elaborate and repetitious preparatory behavior also hinges upon the Hopi's view of physical quantity, duration, intensity, and tendency, to name a few, encouraged by the structure of the Hopi language.

In sum, Whorf argued that language forms an important, if not the most important, basis on which its speakers conceptualize and understand the world. The classification systems embodied in the vocabulary and the overt and covert categories in the grammar lead speakers to habitually structure the environment in specific ways not always shared by speakers of another language. The meaning derived from the interpretation of the world according to the framework offered by the language is the essence of thought. Moreover, by influencing thought, which is closely interlinked with behavior, language also affects the latter. The linguistic relativity hypothesis, however, does not argue for a linguistic "stranglehold" on cognitive functioning that does not allow exceptions or make provisions for mental flexibility. As critics have pointed out, rightfully, neither logical argument nor observation regarding linguistic experience has substantiated such a "tyranny of language" (e.g., Bedau, 1957; Black, 1959). It is hard to imagine that Whorf, the native English-speaker who entered the world of the Hopi language and claimed to have grasped the meaning of Hopi space and time, would want to argue that language determines, in an absolute sense, what a person can comprehend and entertain cognitively. Although Whorf (1956) agreed that "every language and every well-knit technical sublanguage incorporates certain points of view and certain patterned resistances to widely divergent points of view" (p. 247), "the scientific understanding of very diverse languages . . . causes us to transcend the boundaries of local cultures, nationalities, physical peculiarities dubbed "race," and to find that . . . all men are equal" (p. 263). Thus, in terms of linguistic behavior, the linguistic relativity hypothesis may well be interpreted as suggesting that languages do not limit "what can be said in them, but rather . . . what it is *relatively easy* to say in them" (Hockett, 1954). As for nonlinguistic behavior, the linguistic relativity hypothesis proposes that different patterns of behavior are more or less likely for speakers of different languages. Furthermore, as pointed out in the foregoing quotation from Whorf, whatever the differences between people of different backgrounds, the study of diverse languages should help us to understand and overcome those differences.

Because of the long-standing interest in the linguistic relativity thesis and its important implications for human thought and behavior, one would expect there to be a well established tradition of psychological research on the issue. However, such is not the case. Among the major obstacles to its study are the controversies surrounding its interpretation. In attempting to approach the study of language in a scientific manner, Whorf structured his ideas of how language influences thought more systematically than his predecessors in linguistics and stated his arguments in terms of basic human abilities such as categorization. For these reasons, Whorf's formulation of the linguistic relativity hypothesis was the first to attract the attention of empirically minded researchers. At the same time, however, Whorf did not spell out in detail how his arguments might be translated into testable hypotheses. For example, it is not clear in his writings how linguistic backgrounds could be "calibrated" or how the mechanisms involved in linguistic effects on behavioral patterns could be studied. Consequently, the problem of multiple, and occasionally radically divergent, interpretations has hampered research on this issue. Although no widely accepted theory of language, thought, and behavior has yet emerged, there is a small body of empirical data that tends to support the conclusion that language affects thought and behavior in nontrivial ways.

Language and Color Cognition

Early empirical studies of the linguistic relativity hypothesis focused on the area of color memory. The domain of color seemed ideal for testing the linguistic relativity hypothesis because color is a physical *continuum*, and it would therefore seem to follow that color names in the world's various languages represent arbitrary divisions of the color spectrum. Generally, researchers were interested in whether colors that are more "codable" in a given language (as indicated by short names, short reaction time in naming the colors, and high interspeaker naming agreement) or better communicated between speakers (i.e., easier to locate in an array based on another speaker's verbal description) are also better remembered by speakers of the language. Subjects were usually asked to memorize the color of a color chip which they would later attempt to locate in an array. There was an initial series of supportive findings showing that people find different colors easier to remember depending on how codable those colors are in their language. For example, Brown and Lenneberg (1954) studied English color terms and found that colors that have the shortest names, the shortest naming latencies, and the highest intersubject naming agreement are also those that are best remembered. In a cross-linguistic study, Stefflre, Castillo Vales, and Morley (1966) showed that Spanish-speaking subjects found different colors easier to communicate than Yucatec-speaking subjects; furthermore, subjects better remembered those colors that were easily communicated in their own language.

Subsequent research called these conclusions into question. Berlin and Kay (1969) examined 98 languages and concluded that there is a universal inventory of only 11 basic color categories from which the various languages draw. (Basic color terms were defined by a list of criteria including that the term should consist of only one meaning unit, e.g., "yellow" but not "brownish-yellow," and that the reference of the term should be restricted to color only, e.g., "green" but not "pea-soup green.") Furthermore, they found that a universal developmental sequence for basic color terms emerges across different languages. When a language has only two color terms, they are almost always black (dark) and white (light). When a third color term emerges in a language, it is red. The next color terms to develop are yellow, blue, and green. These findings suggest that the physiological visual system directs color naming behavior which is then reflected in language. Some anthropologists, however, have criticized the procedures used in Berlin and Kay's study. For example, Conklin (1973) pointed out that the sources of data for the study were not uniform across cultures. Berlin and Kay consulted dictionaries for color terms in some cultures but asked informants for that information in others. Furthermore, some of the cultures studied lack a superordinate term for "color," and it is therefore unclear whether the meaning of "different colors" or "color terms" is the same in these cultures as in our own where there is a specified domain for color.

Nonetheless, the initial enthusiasm for the linguistic relativity hypothesis was gradually replaced by the view that language is only a reflection of cognition and behavior which, in turn, are grounded in physiological principles and aspects of the physical environment common to all people. This position received support from Heider's (1972) demonstration that subjects who speak English (which has 11 basic color terms) and those who speak Dani (which has only two) found the same set of colors easiest to remember. Similar to their English-speaking counterparts, Dani-speaking subjects' color recognition memory was better for so-called "focal" colors (defined as those particular shades considered the best examples of various color categories across 20 different languages compared in one part of Berlin and Kay's study) than "nonfocal" colors. Furthermore, when taught to associate nonsense names with particular colors, Dani speakers more easily learned those names that were linked to focal colors. These results were the basis for the argument that focality or perceptual saliency, which Heider considered to be the universal basis for human color perception, is the primary determinant of color memory, learning, and codability (e.g., Rosch, 1974, Brown, 1986).

Heider's (1972) influential study has also had its critics. Lucy and Shweder (1979) argued that Heider's findings were biased by the use of an array of color chips in which the "focal" colors were easier to find than the nonfocals because the former were surrounded by colors that were more distinctly different. After correcting the bias in Heider's color array, Lucy and Shweder tested subjects' recognition memory and found that the focals had no advantage over the nonfocals. Rather, it was the colors with high communication accuracy (colors that could be communicated accurately between subjects) that were remembered best. Although Lucy and Shweder's study has also been criticized for the construction of their color array (for example, Kay & Kempton, 1984, and Witkowski & Brown, 1980, argued that Lucy and Shweder's color array actually made it easier for subjects to identify nonfocal colors), the results suggest that language is involved in color memory.

Further evidence for a linguistic influence on color cognition was found by Kay and Kempton (1984), who were specifically interested in the relation between language and perceptual judgments of color. Unlike English, which has distinct terms for "green" and "blue," Tarahumara, a Uto-Aztecan language of northern Mexico, does not make a lexical distinction between these two color categories. Tarahumara has a single term meaning "green or blue." Kay and Kempton hypothesized that green and blue colors near the green-blue boundary would be perceived by English speakers as more different than is justified by the difference in wavelength, because of the lexical distinction between "green" and "blue" in the language. Tarahumara speakers, on the other hand, should not show this distortion. This difference in color perception, however, should disappear when the use of lexical distinctions is prevented.

Kay and Kempton's stimuli consisted of triads of greenish-blue or blueish-green color chips. Within each triad (chips A, B, and C), the researchers varied the difference in wavelength between pairs of colors. For example, the distance between A and B could be greater than, smaller than, or equal to that between A and C or B and C. Furthermore, the specific wavelength corresponding to the blue-green lexical boundary in English was located between different pairs of colors across triads. Participants in the experiment were asked, in their respective languages, to judge which of the three colors was most different from the other two. Subjects' responses therefore represented their judgments of the distance between the colors. The experimental predictions were supported. English-speaking subjects' perceptual judgments reflected the blue-green lexical distinction rather than the actual distance between the colors. Thus, if the lexical color boundary passed between A and B, and C belonged to the same lexical category as B, English-speaking subjects tended to name A as being the most different from the other two, even if the difference in wavelength between A and B was the smallest within the triad. The judgments of Tarahumara-speaking subjects, on the other hand, did not show this linguistically based bias and were in overall agreement with the actual differences in wavelength.

In a second experiment, the researchers introduced a judgment task that was ostensibly different from, but logically equivalent to, the first task. English-speaking subjects were shown the same triads of colors used in the first experiment. The colors in each triad were presented as two pairs (e.g., chips A and B, chips B and C). One of the chips (e.g., chip B) was intermediate in hue between the other two and was always in subjects' view while the other two were alternately covered up. After subjects agreed with the experimenter that one chip, e.g., chip A, was greener than chip B and chip C bluer than chip B, they were asked to contrast the size of the difference in hue between the pairs of chips (i.e., to compare the difference in greenness or blueness). Because subjects had in effect agreed that chip B can be referred to as both "blue" and "green," they could not use this lexical distinction to simplify the task. Under these conditions, in which the lexical distinction is no longer relevant, subjects' judgments of differences between colors resembled those of the Tarahumara subjects in the first experiment.

It can thus be concluded that language affects color cognition. Language helps to simplify perceptual judgments, but with the unfortunate consequence of sometimes biasing them. When the opportunity for language to bias color cognition was removed in Kay and Kempton's (1984) study, English-speaking subjects were able to correct their subjective perceptual bias.

Color identification is grounded in physical differences in electromagnetic wavelength, and human color perception depends very much on fixed physiological mechanisms. It seems reasonable that language would play only a minimal role in cognitive processes involving physically based stimuli such as these. If people's subjective judgments of colors are nonetheless influenced by the differential availability of color names, however, then the effect of language should be even more profound in domains that have no firm physical basis, such as social cognition.

Language and Social Cognition

Research on the relation between language and social cognition has focused on causal attribution, counterfactual thinking, and person cognition. Although findings in the second area are inconclusive, research in the other two has shown that language can affect how people assess interpersonal causality and form impressions of others.

Causal attribution. When told that "Ted disobeys Paul" or "Ted dislikes Paul," people may attempt to assess whether Ted or Paul is more responsible for the state of affairs in question. Research in English has shown that, depending on the specific interpersonal verb involved, causality is asymmetrically attributed to the two parties. Brown and Fish (1983) found that when judging sentences containing interpersonal action verbs, people assign greater causal weight to the "agent" of the interaction (e.g., Ted in *Ted helps Paul*) than to the "patient" (Paul). On the other hand, for interpersonal state verbs, greater causal weight is assigned to the "stimulus" (e.g., Paul in *Ted likes Paul*) than to the "experiencer" (Ted). Brown and Fish showed that the direction of the bias can be predicted by the attributive reference of the adjective derived from the verb in question. In *Ted helps Paul*, the attributive reference of the derived adjective *helpful* is the agent, Ted. In *Ted likes Paul*, the derived adjective is *likable* and is attributable to the stimulus, Paul. There are no derived adjectives such as *helpable* or *liking* that are attributable to the patient or experiencer in the case of these verbs. Therefore, specific aspects of the English interpersonal lexicon predict certain ways of assessing interpersonal causality.

Although their finding might be interpreted as a demonstration that language affects perceptions of interpersonal causality, Brown and Fish (1983) argue instead that it is a demonstration that a universal form of causal thinking affects language use. They point out that the generative morphological system of English is not biased in favor of derived adjectives attributable to the agent or stimulus and against derived adjectives attributable to the patient or experiencer. In principle, therefore, all four types of derived adjectives are equally possible grammatically. According to Brown and Fish, the pattern of causal attribution observed in their study, and the high frequency of adjectives attributable to the agent and stimulus in the English language, both reflect the general human tendency to think in terms of an agent-patient schema and a stimulus-experiencer schema. Agent, patient, stimulus, and experiencer are roles that people play in interpersonal interactions. Only some people normally take, or are able to take, the active role of agent (e.g., help others) or stimulus (e.g., induce liking), whereas almost anyone could be the passive recipient of such an action or experience such a mental state. Membership in the smaller subclasses of agents and stimuli represents distinctiveness information that can be used to infer causal responsibility for an interpersonal event. Brown and Fish assume that these two schemas are universal to human thought and that speakers of English have developed the language in a way that reflects their importance.

The cognitive-universal interpretation of this attribution bias was questioned by Hoffman and Tchir (1990). They pointed out that Brown and Fish (1983) looked at a very restricted sample of verbs and that there are verbs with derived adjectives attributable to the patient or experiencer (e.g., *remark on*, *remarkable*; *obsess*, *obsessive*). From a comprehensive list, Hoffman and Tchir selected equal numbers of action and state verbs with derived adjectives attributable to the agent, patient, stimulus, or experiencer. They then asked subjects to estimate the causal importance of each person in a two-person interaction described in a sentence using one of the selected verbs. The overall attribution bias towards agent and stimulus was attenuated (and in many cases reversed) when the verb's derived adjective refers to the patient (e.g., *recommend, recommendable*) or experiencer (e.g., *dote on, doting*) rather than to the agent (e.g., *obstruct, obstructive*) or stimulus (e.g., *thrill, thrilling*).

The basis for Brown and Fish's (1983) cognitive-universal interpretation of their finding was the assumption that the attribution bias observed in their study could be explained by the use of distinctiveness information to estimate interpersonal causality. In a second experiment, Hoffman and Tchir (1990) asked subjects to judge the same sentences used in the first study in terms of how many other people would be likely to behave, be treated, inspire emotion, or experience emotion in the same way as the persons described in the sentences. Using the distinctiveness information collected, the researchers reanalyzed the data from their first experiment (using verbs, not subjects, as the unit of analysis). After statistically removing the contribution of perceived distinctiveness, a substantial attribution bias related to adjective reference still remained. That is, inductive reasoning based on perceived distinctiveness offers only a partial explanation for the observed bias.

In a third experiment, the nature of the bias was further explored with the use of nonsense verbs. Subjects received a list of nonsense verbs accompanied by sample sentences illustrating whether a given verb was action- or state-related and the attributive reference of its derived adjective. Results showed that the attributive reference of a verb-derived adjective can, in and of itself, affect the causal interpretation of an interpersonal event described by a nonsense verb. In view of the fact that the English lexicon constrains the particular verb-derived adjectives available for use, and the fact that such constraints predict the causal attributions of its speakers, Hoffman and Tchir (1990) concluded that their study demonstrated a relation between language and causal thinking.

The research on color cognition and causal attribution bears upon linguistic effects on information processing at the "mechanical level," to use Hunt and Agnoli's (1991) terminology. In everyday life, mechanical operations deal with the parts utilized to build machines. Analogously, studies of cognition at the mechanical level concern the units of information utilized in processing. In the context of linguistic relativity research, the mechanical level relates to the structuring of information based on the lexicon of a language. When choosing a word to use in a situation, one would focus attention on a relevant aspect of the environment to judge if the word is appropriate and/or access other words that bear possible semantic relations to the word. Hunt and Agnoli refer to differences resulting from one's focus of attention as "direct lexical effects," and to differences arising from different semantic relations as "indirect lexical effects." Data from color cognition studies demonstrate a direct lexical effects. When the necessary information (a specific color in an array) is focused on with the help of an appropriate word (a color term), recognition memory is enhanced. When attention is misguided, however, by the availability of distinct labels (as when English-speaking subjects in Kay and Kempton's (1984) first experiment attended to the names of the two colors to be judged rather than the hue), perceptual judgment suffers. Findings in the area of causal attribution (Hoffman & Tchir, 1990), on the other hand, can be interpreted as demonstrating an indirect lexical effect. Depending on the attributive reference of the adjective most closely associated with the verb in question, causal attribution is biased towards one of the two parties involved.

Hunt and Agnoli (1991) further point out that linguistic effects also occur at the representational level of cognition. Unlike the mechanical level, which concerns units of information used in processing, this level concerns the outcomes of processing. At the representational level, the focus is on interpretations of information. Language can influence the meaning its speakers impart to what happens around them by providing them with a set of relatively easily accessible schemas. Since no one language provides (names for) all possible schemas and different languages have more or less different inventories of schemas, it follows that speakers of different languages may draw different conclusions and make different inferences when given the same information regarding a situation or person simply because they rely on different schemas to begin with.

Bloom (1981) argued that language affects both the development and functioning of schemas. As a child interacts with and learns to structure the environment, he or she develops some schemas free of the influence of language, such as those containing motor information about riding a bicycle or skating. In addition to developing these "non-labeled thoughts," the child also constructs schemas that later receive labels in the language he or she is learning to speak. The English-speaking child, for example, discovers that the label *grapefruit* refers to the schema he or she developed for that big, sweet-sour, edible object on the breakfast table. Labeling the schema with the word *grapefruit*, however, does not change its internal organization. The development of a third type of schema, on the other hand, depends on the necessity for the child to learn the meaning of specific terms in the language. For example, a child is not likely to develop on his or her own the schema labeled by the word *dog*, which covers a very diverse-looking range of animals and does not have a particularly coherent internal organization. It is not difficult to imagine a child, before learning about the word *dog* and its corresponding schema, thinking that a Chihuahua is more closely related to a big squirrel than to a Great Dane. Other, more abstract examples include the schemas labeled by the words *amount*, *tao*, *counterfactual*, and *personality*. In short, Bloom (1981) argued that "the child will have to readjust and/or extend in new directions his cognitive mapping of the world until it comes to include the cognitive divisions these labels require" (p. 67).

Besides shaping the development of a large number of schemas, language also affects the functioning of schemas. Specifically, those schemas that have linguistic labels enjoy a special status in our mental life. According to Bloom, this is because the use of verbal symbols not only is a prerequisite to overt social communication, but also facilitates the covert self-communication in which we engage to structure our own thought processes.

We seem to call specially upon those of our schemas that have

> names, via their names, when we want to disengage particular schematic perspectives from the collectivity of our interacting associations, ideas, and experiences and make use of those discrete, structured perspectives on reality as stable points of mental orientation to provide direction to our continuing cognitive activities. (Bloom, 1981, p. 76)

Moreover, Bloom pointed out that the significant effects of language can be seen more clearly in the case of schemas developed to satisfy the requirement of learning to correctly use their linguistic labels. This is especially true when one is dealing with those highly complex, abstract schemas (rather than the simple, concrete ones concerning the physical perceptual world) for which having a mental anchor is particularly helpful, and in those cases requiring the use of information "that can neither be represented in perceptual terms nor easily disengaged and maintained in mind without the aid of associated linguistic labels" (Bloom, 1981, p. 83). Two of the research areas that satisfy these criteria are counterfactual thinking and person cognition.

Counterfactual thinking. Counterfactual thinking involves reasoning with contrary-to-fact premises. Social interaction often depends on anticipation of events or states of affairs that are hypothetical or have not yet occurred. Counterfactual thinking is therefore an important aspect of social cognition. Bloom (1981) pointed out that, unlike English, Chinese has no distinct lexical marker for counterfactuality. In English grammar, counterfactual reasoning is part of what is known as the subjunctive mood. When the context is in the present, a counterfactual statement is typically marked by the use of the past tense of the verb in the first clause of an otherwise straightforward implicational sentence, followed by a form such as *would* or *could* in its second clause (e.g., *If his wife knew about the affair, she would kill him*). When the context is in the past, the past perfect tense is used in the first clause followed by a form such as *would have* or *could have* in the second clause (e.g., *If John had gone to the library, he would have seen Mary*). In Chinese, when the context is unfamiliar to the listener, counterfactuality is indicated only by explicit negation of certain premises before the conditional statement in question (e.g., *John did not go to the library, but if he went, he saw Mary*). If the context is known, there is no negation of premises and the statement will thus be indistinguishable from an ordinary conditional.

Bloom (1981) argued that once signaled by the proper grammatical markers, native English speakers are able to engage in counterfactual reasoning in a straightforward manner. Native Chinese speakers, on the other hand, constantly have to keep the context or the negated premises in mind in order to proceed with counterfactual reasoning. Consequently, according to Bloom, Chinese speakers may have to expend more cognitive effort relative to their English counterparts when processing the same piece of counterfactual information. Bloom therefore hypothesized that because of the lack of a distinct lexical marker to assist counterfactual reasoning, Chinese speakers would be less inclined than English speakers to engage in the counterfactual mode of thinking.

To support his arguments, Bloom presented data from various studies in which Chinese-speaking subjects, the majority of whom were monolingual or had very little contact with English, consistently scored more poorly than English-speaking subjects on tests of counterfactual reasoning. Au (1983) set out to replicate the results, but her study failed to support Bloom's findings. Au pointed out that Bloom's Chinese experimental materials were highly unidiomatic and that, unlike the English-speaking subjects who encountered a counterfactual cue with every implication, the Chinese-speaking subjects had to keep the counterfactual context constantly in mind. Therefore, Au suggested that Bloom's findings were due to difficulty in comprehending the experimental material and memory overload on the part of the Chinese-speaking subjects. After controlling for the number of implications subjects had to remember, improving on the idiomaticity of one of Bloom's original counterfactual stories, and introducing a new counterfactual story, Au found very little difference between her Chinese-English bilingual subjects and Bloom's English-speaking subjects in the ability to reason counterfactually.

In response, Bloom (1984) argued that Au's (1983) study was not comparable to Bloom's (1981), due to Au's choice of subjects and experimental materials. Unlike Bloom's (1981) mostly monolingual Chinese subjects, Au used high-school students in Hong Kong who had been very much acculturated into the English language and Western thought. Furthermore, Bloom pointed out that Au's new counterfactual story dealt with concrete information and that her revision of his original story rendered it less complex. By so doing, Bloom contended that Au failed to test his basic argument, namely, that the effect (advantage) of having access to a counterfactual linguistic structure is most likely to occur with highly abstract and complex material. In response, Au (1984) conducted another series of experiments using the complex version of Bloom's (1981) story, but adding a number of Chinese auxiliary verbs, which, in the presence of negated premises or known context, can be used in an "if-then" conditional to mark a hypothetical implication (e.g., *jiù*, the lexical equivalent of *then* in English), which she argued is necessary to convey counterfactuality. The results were similar to those of her 1983 study. Furthermore, in one experiment, she used subjects with very limited knowledge of the English counterfactual grammatical structure (as shown in a translation task) and still obtained comparable results. Liu (1985) also found that a lack of knowledge of the English counterfactual structure does not adversely affect counterfactual thinking in Taiwanese students.

Thus, the bulk of the research on counterfactual reasoning appears to indicate that the lack of a counterfactual grammatical marker in a language does not necessarily affect the counterfactual reasoning ability of its speakers. There is, nevertheless, still a need for further research. Studies in this area have indeed failed to support the argument that the lack of a counterfactual linguistic form would result in a corresponding deficit in counterfactual reasoning ability. However, it should be pointed out that the weak version of Bloom's (1981) argument is only that native Chinese speakers may be less inclined to engage in counterfactual thinking *as spontaneously or habitually* as do native English speakers, not that Chinese speakers are *unable* to engage in counterfactual thinking when required to. The available evidence has not disproven this weak version of the argument, and the relation between language and counterfactual reasoning remains unclear. It may be that, as with color perception, linguistic influences on counterfactual thinking are more or less likely to occur with different situational demands.

Person cognition. Most research on the linguistic relativity hypothesis has been implicitly based on a "deficit model" of linguistic influence (Rosch, 1974). The assumption has been that a given difference between two languages would be paralleled by a "deficit" in related areas of cognitive functioning in the speakers of one of the languages. In the area of color cognition, it was expected that Dani speakers would show poorer overall memory for colors than English speakers, because Dani has only two color terms. In the area of social cognition, Chinese speakers were expected to be less able to engage in counterfactual thinking because Chinese has no distinct lexical marker for counterfactuality. The deficit model could potentially be used to support elitism and may even account for some of the early resistance to studying the linguistic relativity hypothesis. (The irony, of course, is that by promoting the linguistic relativity hypothesis, Whorf hoped to demolish such elitism.) Furthermore, the model focuses on seeking out cognitive deficits and not on how cognitive differences can interact with other variables. Research based on this model, therefore, offers only a very limited view of the relation between linguistic and nonlinguistic behavior.

Rosch (1974) proposed that researchers should abandon designs that focus on "main effects" of language and instead utilize designs that emphasize interactions of variables within and between languages. For example, in the area of color cognition, one could study the relative performance of speakers of different languages in different areas of the color spectrum. Berlin and Kay (1969) noted that the Western Apache language has only one label corresponding to the colors green and blue but has separate terms for yellow and brown; on the other hand, Cantonese has separate terms for blue and green but only one label corresponding to yellow and brown. A study taking the interaction approach might determine if Western Apache speakers, similar to English-speaking subjects in the first experiment of Kay and Kempton (1984), make biased perceptual judgments concerning the colors for which they have separate terms, i.e., yellow and brown, more so than when judging the colors for which they do not have separate terms, i.e., blue and green, whereas Cantonese speakers make biased perceptual judgments concerning blue and green more so than when judging yellow and brown.

The goal of this interaction approach is to show that one language shows a distinctive pattern of performance on one task variant or set of materials, or under one set of conditions, whereas the other language shows the pattern on another task variant or set of materials, or under another set of conditions. This is a better design than one in which speakers of one of the languages are simply predicted to perform better on the task(s) in question, since in the latter case it is unclear whether the effect is caused by the language difference (e.g., having or not having distinct labels for various colors) or a general cognitive deficit in the speakers of the other language (e.g., a general deficit in perceptual color judgment). A study by Hoffman, Lau, and Johnson (1986) is an example of this interaction approach in which the focus was on whether subjects would form different impressions of a given character depending on the degree to which the character's personality is "codable" in the language used to process the information.

Personality concepts play a special role in social interaction. For example, the effectiveness of attempts to convey images of individuals, from obituaries to gossip, depends very much on appropriate selections of personality adjectives. However, the lexicons of different languages vary in their codification of individual differences, that is, in their repertoires of labeled schemas for personality traits and types. In view of the linguistic relativity hypothesis, it is therefore reasonable to ask if language can affect impressions of people. When we come into contact with someone, is our impression of the person influenced by whether or not our language provides a label for the type of personality the individual displays?

Hoffman et al. (1986) investigated possible differences in schematic processing corresponding to differences in the codification of personality traits in English versus Chinese. The researchers identified English-language and Chinese-language personality adjectives that have no economical equivalent in the other language. For example, there is no single English term equivalent in meaning to the Chinese personality adjective *shì gu*, which depicts a person who, among other things, is worldly, experienced, socially skillful, devoted to family, and somewhat reserved. On the other hand, there is no single Chinese adjective for someone who has artistic skills and interests, an "artistic" cognitive style and temperament, and leads a "bohemian" lifestyle. The appropriate English term is *artistic* (or, better, *the artistic type*).

Three groups of subjects participated in the study: a group of English monolinguals, a group of Chinese-English bilinguals who processed the information in English, and a group of Chinese-English bilinguals who processed the information in Chinese. Subjects read a set of concrete behavioral descriptions of four fictitious characters, either in English or in Chinese. Two of the characters exemplified personality schemas with economical labels in Chinese but not in English (the Chinese-specific adjectives) and the other two characters exemplified personality schemas with economical labels in English but not in Chinese (the English-specific adjectives).

The researchers were interested in whether language of processing would influence schematic thinking, more specifically, the extent to which subjects would go beyond the information given to infer schema-congruent attributes not found in the original description, and the extent to which subjects' memory would be biased by the schema. It was found that subjects processing the character descriptions in English showed greater evidence of schematic thinking in the case of the two characters exemplifying the personality types with English-specific labels, whereas those processing the descriptions in Chinese showed greater evidence of schematic thinking in the case of the two characters exemplifying the personality types with Chinese-specific labels. Subjects' impressions of the characters and recognition memory were affected when the targets' personality and behavior conformed to labeled schemas in the subjects' language of processing.

To further understand the relation between language and person cognition, however, a still broader interaction approach is necessary. In addition to studying how language of processing interacts with the nature of the stimulus information to affect cognition, it is also important to determine whether and how linguistic effects on thinking interact with variations in cognitive and motivational demands and the characteristics of the judgment situation. That is, what are the conditions under which linguistic effects on cognition can be expected to occur or not occur? The present study adopts this broader interaction approach and examines some of the conditions under which language effects on person perception, specifically the linguistically based schematic processing effects found by Hoffman et al. (1986), are maintained or attenuated.

Schemas have immense cognitive utility. In the case of personality schemas, once social perceivers apply a specific schema to a target person (usually, if not always, by applying a particular personality trait or type term to the person), they have access to cognitive shortcuts that can save a great deal of their limited cognitive resources. Instead of having to pay close attention to details of the target's behavior, perceivers can use personality schemas as coherent informational frameworks to help fill in missing information. Consequently, more resources can be allocated to the processing of other information in the environment. Furthermore, schemas form the basis on which inferences regarding the target can be made. In short, as in the situation in which the color terms available in a language guide people's subjective color judgments, the personality trait and type terms available in a language may also guide its speakers' impressions of and interactions with others.

Various researchers (e.g., Bargh & Thein, 1985; Bodenhausen & Lichtenstein, 1987; Bodenhausen & Wyer, 1985; Martin, Seta, & Crelia, 1990) have found that when faced with a cognitively demanding task, people are especially likely to rely on the use of schemas or stereotypes as a simplification strategy. In view of the resource-saving property of personality schemas, these results are not surprising. As part of everyday life, however, our knowledge of others often increases over time. Therefore, we sometimes abandon schemas that we have previously applied to others after learning more about them, and we may select other, more appropriate schemas. On the other hand, we do not always change our minds. One of the obvious factors influencing whether we will adjust our impressions of others is the relevance and comprehensiveness of additional information about the person in question. Recent findings indicate that the disuse of activated schemas also depends, however, on how ready the recipient of new information is.

Gilbert and Hixon (1991) provided subjects with information that activated their schema of Asian females by showing a videotape of an Asian female research assistant. Subjects were then given additional personal information about the target that was unrelated to the Asian female stereotype. During encoding of the initial or the additional set of information, the researchers manipulated whether subjects were "cognitively busy" performing another task (e.g., rehearsing an eight-digit number). When later asked to rate the target's personality on a list of trait attributes, subjects who were cognitively busy during encoding of the initial information were less likely to give high ratings to attributes characteristic of the Asian female schema. On the other hand, subjects who were cognitively busy when encoding the additional information were less likely to incorporate the additional information into their final assessments of the target's personality attributes. Comparable results were obtained by Gilbert and Osborne (1989) and Gilbert, Pelham, and Krull (1988) using the schema of the anxious person and different cognitive busyness manipulations (e.g., anticipation of an additional experimental task).

To summarize, during times of cognitive busyness, people are less likely to activate specific personality schemas; but once such schemas are activated, cognitively busy people are more likely to rely on these schemas and less willing to abandon them, even when they have received additional information that questions their initial impressions. However, sometimes even when people have the relevant information and sufficient cognitive resources, they might still fail to adjust their impressions appropriately if they are not motivated to be accurate in those impressions. Tetlock (1983) and Tetlock and Kim (1987) found that relative to subjects who believed that their responses would be anonymous, those who had to *account for* their impressions or judgments processed person information more thoroughly and formed more accurate impressions. That is, subjects who had to justify their impressions were less likely to be biased by schemas and stereotypes.

The objective of the present study was to examine the possible interaction between language-specific differential person perception, cognitive busyness, and accountability. Based on the results of Hoffman et al. (1986), it was expected that the same person information would activate different personality schemas, depending on the language used to process the information. Such language-specific schematic processing entails differential impressions, inferences, and retention of information. In addition, however, a range for linguistic influence on cognitive processing was postulated. Theoretically, schematic processing should be attenuated when perceivers receive additional information questioning the appropriateness of their initial categorization. However, in view of findings concerning cognitive busyness, it is possible that people cannot afford to abandon previously activated schemas in all cases. Those who are cognitively busy should be less likely to take advantage of additional information to adjust their impressions and, consequently, less likely to "deactivate" previously applied personality schemas. Furthermore, subjects who are not motivated to be accurate in their impressions of others, even though they may have the necessary information and cognitive resources, might also fail to transcend the influence of previously activated schemas.

Based on the findings of the various studies reviewed in the foregoing discussion, it was hypothesized that when people receive relevant and comprehensive additional information about a target person to whom a particular language-specific personality schema has been applied, those who are not cognitively busy and are motivated to form accurate impressions will process the additional information more thoroughly and consequently will show greater adjustment of their language-specific initial impressions of the target person.

Development of the Experimental Materials

Four pretests were carried out to establish the codability of the schemas to be used in the main experiment and to ensure that the experimental materials accurately exemplified the schemas. First of all, information was gathered concerning attributes (behaviors, attitudes, etc.) characteristic of a number of personality types and emotion states[1] with English-specific or Chinese-specific labels. This information formed the basis on which individual character descriptions, each exemplifying a specific personality type or emotion state, were constructed. Based on the same source, lists of statements, each describing a hypothetical behavior or attribute of one of the characters, were also compiled. These "inference items" were written in the form of questions asking subjects to judge the likelihood that the behavior or attribute would be true of the character. There were two types of inference items. "Description-based" items are those whose likelihood can be estimated based on information contained in the character description per se. "Schema-implicit" items are those that can be judged on the basis of attributes implicit in the personality or emotion schema represented by the description, but not on the basis of information explicitly stated in the description. There were parallel English and Chinese versions of the character descriptions and inference items.

Then, in three subsequent pretests, English monolinguals and Chinese-English bilinguals were asked to read the character descriptions, label the characters, and judge the likelihood that the inference items would be true of the character in question. Their responses helped to determine the extent to which each of the personality and emotion concepts can be easily and accurately labeled (coded) with an agreed-upon adjective in one language but not in the other. The data also formed the basis for improving the accuracy of the character descriptions and the appropriateness of the inference items in relation to the schema in question.

Pretest 1

Two lists of commonly used personality and emoticn adjectives were compiled. One list consisted of 14 English adjectives with no economical translations in Chinese, and the other consisted of 18 Chinese adjectives with no economical translations in English. Judgments concerning the availability of economical translations were made by the researcher (a Chinese-English bilingual) and her supervisor, based on their intuitions and the *New Oxford Illustrated English-Chinese Dictionary* (1984). Twenty-four English monolinguals were asked to list concrete and specific examples of behaviors, feelings, and attitudes typical of the personality types and emotion states described by the English adjectives. For example, for the "defensive" type of person, the list of characteristics included "saying `I didn't do it' without any accusation being made," "feels inadequate," and "always anticipates something bad to happen." Twenty-four Chinese-English bilinguals were asked to do the same (in Chinese) for the Chinese adjectives. Five English personality adjectives (*artistic*, *defensive*, *liberal*, *macho*, *obsessive*) three Chinese personality adjectives (*shēn cáng bú lòu*, *shì gu*, *xiào shùn*) and two Chinese emotion adjectives (*xiàn mù*, *xīn xū*) were selected for further testing. These adjectives were chosen because they seemed to represent especially rich personality or emotion concepts. That is, relative to other adjectives, subjects listed more behaviors, feelings, and attitudes, in a wider variety of everyday life situations, for these 10 adjectives.

Pretest 2

The attributes listed for each adjective were then grouped into general categories by the researcher. For each adjective, three or four of the most characteristic categories, containing the largest numbers of attributes, were used as the basis for construction of the individual character descriptions.

Each of the 10 character descriptions consisted of three to five concrete behavioral examples for each of the selected attribute categories pertaining to the adjective in question. All 10 characters were male and were given different names to make the descriptions more realistic and distinguishable. Each description was identified by the character's name as the title. The length of the English descriptions ranged from 263 to 425 words and the length of the Chinese descriptions ranged from 382 to 600 characters.

The descriptions were initially written in English. As in Hoffman et al. (1986), the most concrete language possible was used. No trait terms or other expressions that do not have more or less exact equivalents in Chinese (as judged by the researcher and her supervisor) were used in the descriptions. All materials were then translated into Chinese by the researcher. The Chinese versions were back-translated into English and compared to the original English versions. Any necessary changes were made at each stage of translation to ensure equivalence of meaning across the English and Chinese versions.

In addition to the character descriptions, lists of attributes in the form of hypothetical statements requiring likelihood estimation were compiled for individual characters. There were two types of hypothetical statements: description-based and schema-implicit. Description-based items pertain to the attribute categories used in the description. Subjects could judge the likelihood of these items by making inferences based directly on information in the description. Although these items do refer to attributes of the language-specific schema in question, all subjects received the same character information, and their judgments of these items were not necessarily expected to differ as a function of the language used to process the information.

Schema-implicit items, on the other hand, pertain to attributes not found in the character description but implicit in the schema that the description was intended to exemplify. To judge these items, subjects would have to rely on their knowledge of the schema in question. As suggested by Bloom (1981), the ease with which subjects can access the schema is assumed to depend on whether the language used to process the information provides a label for the schema. Therefore, it was expected that subjects whose language of processing provides a label for the schema would make stronger inferences for schema-implicit items.

There were two or three description-based items for each attribute category in the description. For example, for the "defensive" character, one of the categories was "tends to constantly justify actions and beliefs," and one of the corresponding description-based items was "Imagine that Jack missed a midterm exam because he had the flu. How likely is it that Jack would think it was necessary for him to explain to his friends that he missed the exam due to medical reasons and not because he hadn't studied enough?" There were two or three schema-implicit items for each of three or four other attribute categories in the broader personality type or emotion state in question. For the defensive character, an example of a schema-implicit item pertaining to the attribute "reserved" was "How likely is it that Jack would prefer staying home to attending a party?"

For the second pretest, there were three groups of 15 subjects each: English monolinguals working with the English version of the materials (hereafter referred to as the E-E group), Chinese-English bilinguals working with the English version (the CE-E group), and Chinese-English bilinguals working with the Chinese version (the CE-C group). The subjects in each group first read the character descriptions. They then labeled each character with the best adjective they could think of and rated how accurately and completely the adjective described the character. They also gave and rated their second choice of adjective, if there was one. Finally, for each character, subjects rated the likelihood that each statement in the list of inference items could be applied to the character.

Based on the results of this test, content changes were made to the descriptions and inference items in an effort to better capture the characteristics of the personality and emotion concepts in question. (One of the "English" characters received very high labeling agreement and ratings in both the English and Chinese language groups, suggesting that it was equally and highly codable in both languages. It was therefore not included in the remaining pretests.) Aspects of a character that could be interpreted as exemplifying personality types or emotion states other than those targeted, as reflected in subjects' labels, were either deemphasized or deleted. Inference items not receiving ratings close to the expected values were studied and revised.

Pretest 3

The revised descriptions and inference items were then tested in a third pretest with three new groups of subjects. The procedure of this pretest was identical to that in the second pretest, except that instead of giving their own labels, subjects were asked to select the most appropriate label from a list of adjectives. The list of Chinese adjectives consisted of all adjectives listed at least twice for any of the nine characters by the CE-C group in the second pretest. Seventy-four Chinese adjectives were included on the list. When the same criterion was applied to the English adjectives listed by subjects in Pretest 2, only 65 adjectives qualified; therefore, nine additional adjectives were selected from those remaining (one from each character's pool of adjectives) so that there would be equal numbers of adjectives in the Chinese and English lists.

In addition to selecting an adjective from the provided list, subjects were also asked to give an adjective of their own that was more appropriate than any of the listed adjectives, if they could think of one. At the end of the pretest, subjects completed a vocabulary test in which E-E subjects defined all the targeted English adjectives and the CE-E and CE-C subjects defined both the English and Chinese adjectives. Only data from subjects who could correctly define a particular adjective were included in the analyses concerning that adjective. The final sample included 6 subjects in the E-E group, 9 in the CE-E group, and 7 in the CE-C group. Based on information collected in this pretest, appropriate changes were again made to improve the character descriptions and inference items.

Pretest 4

In a final test of the materials, another three groups of subjects read the improved character descriptions and inference items and performed basically the same tasks as in the third pretest. To obtain useable data from at least 12 subjects per group for each adjective, 22 subjects in the E-E group, 23 in the CE-E group, and 14 in the CE-C group were required. For each character, subjects (a) selected the best adjective from a list and rated its accuracy and appropriateness, (b) gave and rated another adjective that they considered more appropriate than any on the list, if they could think of one, and (c) rated the likelihood that each of a set of hypothetical statements would be true of the character. Subjects were presented with a different list of adjectives for each character. The lists were shorter than the single list used in the third pretest. Each list consisted of adjectives that were listed at least twice (including at least once as the first choice) for the character in question by subjects in the second pretest, together with all the first choices for that character by subjects in the third pretest. Applying this criterion resulted in a maximum of 12 English adjectives for one of the characters and 8 Chinese adjectives for another. For characters that had fewer than the maximum number of adjectives, filler adjectives were added, selected from those that were listed twice or more as the second choice for the character in question by subjects in the third pretest.

Construction of the Final Materials

The personality types finally selected for use in the main experiment were the two that showed the greatest difference in codability across the two languages. The personality type relatively more codable in Chinese was "*shēn cáng bú lòu*." The personality type relatively more codable in English was "defensive."

Codability was assessed in terms of subjects' agreement on the adjective best describing a character and their ratings of the appropriateness of the selected adjective. In general, ratings of adjective appropriateness were higher for characters intended to represent a language-specific schema in the subject's language of processing. The two characters finally chosen were among the few also to show a clear pattern of agreement in the labeling data.

For the character exemplifying the *shēn cáng bú lòu* personality, 69% of the CE-C group selected the targeted adjective *shēn cáng bú lòu* to describe him. No CE-C subject offered another adjective as more appropriate than the ones provided. In the CE-E group, the most frequently selected adjectives were *modest* (21%) and *reserved* (21%). In the E-E group, the most frequently selected adjective was *modest* (36%). Subjects in the CE-E group offered four other adjectives while those in the E-E group offered five. That is, in addition to the 12 adjectives provided, subjects working in English offered another nine adjectives to describe the *shēn cáng bú lòu* character.

For the character exemplifying the defensive personality type, 53% of the E-E group and 53% of the CE-E group selected the targeted adjective *defensive* to describe him. The next most frequently selected label in the E-E group was *insecure* (29%), and in the CE-E group it was *sensitive* (16%). Only one subject in the E-E group gave an alternative adjective when asked to try to think of one, and none of the subjects in the CE-E group did so. In the CE-C group, the most frequently chosen label (36%) was a Chinese adjective that roughly means "sensitive" or "fussy." Only one CE-C subject provided an alternative adjective for the defensive character, suggesting that not only is there no one generally agreed-upon adjective in the list that can be used to refer to this personality type, but also that it is difficult to come up with such an adjective in the Chinese language.

The description exemplifying the *shēn cáng bú lòu* personality type included the following attribute categories: (a) knowledgeable and skilled in a wide variety of areas, (b) reluctant to reveal knowledge unless it is absolutely necessary to do so, (c) reluctant to reveal feelings or opinions, and (d) reluctant to ask help from others (Appendix 1). The description exemplifying the defensive personality type included the following attribute categories: (a) sensitive, easily offended, (b) tends to overreact, and (c) tends to constantly justify actions and beliefs (Appendix 2). The descriptions used in the main experiment were very slightly revised versions of those from Pretest 4.

Lists of 33 inference items per character were compiled to assess subjects' impressions of the characters in the main experiment (Appendix 3). The items were designed to be rated on scales ranging from "very unlikely" or "never" to "very likely" or "very frequently." Within both the description-based and schema-implicit item categories, roughly half of the items were worded such that a schema-congruent inference would result in a rating toward the "very likely" or "very frequently" end of the scale, and roughly half were worded such that a schema-congruent inference would result in a rating toward the "very unlikely" or "never" end of the scale.

For the *shēn cáng bú lòu* character, there were 8 description-based items pertaining to the attribute categories listed above for this character, as well as 22 schema-implicit items pertaining to the following attributes not explicitly portrayed in the description: withdrawn, cautious, secretive, dislikes getting involved, has a personality type more common among older people, keeps a low profile, likes compliments, likes to surprise others with his knowledge, tends to avoid conflicts, and has high self-esteem. In addition, there were 3 neutral items pertaining to attributes unrelated to the schema (enjoys the outdoors, traveling, and science fiction--attributes that were not introduced, however, until the second description; see below).

For the defensive character, there were 9 description-based items pertaining to the attribute categories listed above, as well as 21 schema-implicit items pertaining to the following attributes: suspicious, reserved, cautious, close-minded, anxious, protective, selfish/self-centered, serious/grumpy, insecure about his ability, has few friends/has difficulty in making friends, does not listen well, and will not admit that he is wrong. In addition, there were 3 neutral items pertaining to attributes unrelated to the schema (enjoys cooking, sports, and the performing arts; see below).

To ensure that the inference items used in the main experiment would fall clearly into either the description-based or schema-implicit category, two of the researcher's colleagues in the Department of Psychology (an English monolingual and a Chinese-English bilingual) had previously rated either the English or Chinese version of each item in the original pool for each character (which at that point included over 120 items in both cases) according to whether it is possible to judge, strictly on the basis of the initial character description, if the item would or would not be true of the character. The items finally chosen for use in the main experiment were selected from those that both judges agreed either do (description-based) or do not (schema-implicit) have a clear basis in the description.

A second set of character descriptions was also constructed, the purpose of which was to provide information that could change people's impressions of the two characters. For the *shēn cáng bú lòu* character, the second description contained (a) behaviors typical of the same four attribute categories in the original description, as well as (b) behaviors atypical of those four attribute categories, (c) behaviors atypical of the broader personality schema exemplified by the character (keeps a high profile; careless; has low self-esteem), and (d) behaviors unrelated to the personality type (enjoys the outdoors, traveling, and science fiction) (Appendix 7). For the defensive character, the second description contained (a) behaviors typical of the same three attribute categories in the original description, as well as (b) behaviors atypical of those three attribute categories, (c) behaviors atypical of the broader personality schema exemplified by the character (outgoing/extraverted; confident about own ability; willing to take risks), and (d) behaviors unrelated to the personality type (enjoys cooking, sports, and the performing arts) (Appendix 8).

To assess impressions of the characters after the second descriptions, a second list of 33 inference items was also compiled for each character (Appendix 9). The content of the first and second inference lists was roughly matched on an item-for-item basis. For the *shēn cáng bú lòu* character, there were 16 description-based items, 14 schema-implicit items, and 3 neutral items (pertaining to the unrelated attributes). For the defensive character, there were 18 description-based items, 12 schema-implicit items, and 3 neutral items. (There were relatively more description-based items on the second than on the first inference test because three previously schema-implicit attribute categories were included in the second description of each character, a procedure changing them to description-based.)

The same two judges who had rated each item from the original item pools in relation to the first descriptions also rated each item in relation to the first and second descriptions considered together. The items included in the second inference test were selected from those that both judges agreed either do or do not have a clear basis in one or both descriptions.

Main Experiment: Method

Overview

Subjects first read two character descriptions, one of which exemplified a personality type with a Chinese-specific label and the other of which exemplified a personality type with an English-specific label. Then, for each character, subjects (a) labeled him with an adjective selected from a list, (b) wrote an open-ended description of him, and (c) estimated the likelihood that each of a list of attributes would be true of him.

They were then told that in the second part of the experiment they would read a second description of the two characters and answer some related questions. One third of the subjects were also led to expect that after they had completed the second part of the study, they would take part in a videotaped discussion of their research participation experience and were asked to think about the various aspects of their participation experience while working on the second part of the experiment. The purpose of this procedure was to produce a state of "cognitive busyness" in subjects, by creating the prospect of an upcoming, mildly anxiety-inducing task. Another group of subjects was also led to expect a third part to the experiment, in which they would have to account for their responses to the questionnaires in the second part. The aim of this procedure was to encourage subjects to integrate information from the two character descriptions. The remaining subjects were not led to expect a third part to the experiment and were simply asked to pay attention while working on the second part.

All subjects then read the second description of the characters and, for each character, (a) wrote an open-ended account of their impression of him based on both the first and second descriptions, (b) indicated whether they had seen each of a list of statements in either of the descriptions, and (c) estimated the likelihood that each of a second list of attributes would be true of him.

The design of the experiment was a Language of Processing (English vs. Chinese) x Language of Schema (English vs. Chinese) x

Cognitive Set (busy vs. accountable vs. control) mixed-model factorial. Assignment to cognitive-set condition and, for the bilingual subjects, language-of-processing condition, was random. Language of schema (corresponding to character) was a within-subjects variable.

Subjects

Approximately half of the subjects were introductory psychology students at the University of Alberta who participated in partial fulfillment of a course requirement. The remaining subjects were students recruited from Augustana University College, the University of Alberta, Grant MacEwan Community College, and Concordia College either by phone or in person. Some of the latter subjects received a $5 payment in exchange for their participation.

As in the pretests, three language groups took part in the experiment: the E-E, the CE-E, and the CE-C group. (By including two bilingual groups with comparable cultural backgrounds, except for the language used in the experiment, it is possible to keep cultural variables constant, to a certain extent. Differences between the two bilingual groups can be more clearly attributed to linguistic effects.) At the conclusion of the experiment, all subjects completed a vocabulary test. The E-E subjects were asked to define three terms, including the targeted adjective for the English-specific personality type (*defensive*) and to indicate whether English was their first language (Appendix 10). The CE-E and CE-C subjects were asked to define three English and three Chinese terms, including both targeted adjectives (*defensive* and *shēn cáng bú lòu*) and answered a questionnaire concerning their background and proficiency in the two languages (Appendix 11). E-E subjects whose first language was not English were replaced. Subjects in any of the groups who defined the targeted adjective(s) incorrectly were also replaced. In all, 6 E-E, 11 CE-E, and 7 CE-C subjects were replaced for one of the above reasons. An additional 2 CE-E subjects were also replaced, one because she revealed that she knew the purpose of the experiment beforehand and the other because he was obviously not following instructions properly.

The final sample included 12 subjects (7 females and 5 males) in each of the nine Language Group x Cognitive Set conditions, for a total of 72 bilinguals and 36 monolinguals. Subjects were run in groups of up to four persons per group, always in the same experimental condition.

Procedure

For the E-E and CE-E groups, all instructions (written and oral), stimulus materials, and response forms were in English. In addition, subjects in the CE-E group were asked, at the beginning of the experiment, to think and respond exclusively in English during the experiment. Instructions, stimulus materials, and response forms were in Chinese for the CE-C group, who were asked to think and respond exclusively in Chinese.

The experimenter informed subjects that the experiment was part of a project dealing with personality concepts in English and Chinese. Subjects were instructed to carefully read the behavioral descriptions of two characters twice (Appendices 1 and 2) and try to form a clear impression of their personalities. Subjects were told they would have 6 minutes to read the descriptions, but those who could not finish in the allotted time were always allowed extra time to complete the task. One of the characters exemplified the *shēn cáng bú lòu* personality type. The other character exemplified the defensive personality type. These initial descriptions were slightly revised versions of those used in the fourth pretest and contained only behaviors that are typical of the personality type in question. Within each experimental condition, half of the subjects read the description of the *shēn cáng bú lòu* character first; the other half read the description of the defensive character first. Subsequent questionnaires pertaining to the two characters always appeared in the same order as the descriptions. Then, for each character, subjects performed three tasks (Appendix 3):

1. *Labeling*. Subjects were asked to select from a list of eight adjectives the one that most accurately and completely described the character in question and to rate how accurately and completely that adjective described him. The lists of Chinese adjectives were identical to those in the fourth pretest. There were 12 English

adjectives on the lists in the fourth pretest. The four adjectives that were least frequently selected by subjects in that pretest were dropped in the experiment so that the English and Chinese lists would have equal numbers of adjectives. This procedure ensured that differences in subjects' labeling agreement would not be due to the fact that subjects using English had more alternatives to choose from.

Subjects were then asked if they could think of another adjective, not on the list, that more accurately and completely described the character's personality and, if so, to write it down and rate it on the same scale used for the first adjective.

The labeling task represents a departure from Hoffman et al. (1986). Subjects in the earlier study were *not* asked to explicitly label targets. Although this change has the disadvantage of increasing the artificiality of the experimental situation, it is not totally unlike many real-life contexts. When talking about a person, very seldom do people provide only a description of the person without also offering one or more personality adjectives to describe him or her. On the other hand, this procedure has the advantage of increasing the likelihood that differences in labeling (whether implicit or explicit) would be due less to random variation in the labels individual subjects might happen to think of at the time, and more to inherent differences in the ability of the two languages to encode the personalities appropriately, given that the eight adjectives on the lists are the *best* descriptive terms each of the two languages has to offer to linguistically encode the personality type in question. Thus, the procedure was intended to maximize the possibility that subjects would (could) take advantage of their language's best resources when conceptualizing each character.

It might be thought that subjects could simply select two or more adjectives from the list to adequately describe the personality type less codable in their language of processing (e.g., *knowledgeable* and *reserved* to describe the *shēn cáng bú lòu* character). Although, in principle, people can create novel schemas by overlapping two or more familiar ones, it is not very likely that subjects would attempt to do so because it would take many more schemas than those labeled by the adjectives on the list to accurately describe the personality type in question. For example, none of the schemas labeled by the English adjectives on the list, either by themselves or in combination, can help to predict that the *shēn cáng bú lòu* character likes compliments and likes to surprise others with his knowledge.

2. *Open-ended impression*. Subjects were asked to write down, in their own words, their impression of the character. Asking subjects to present their impressions in writing encourages them to think about the character. Assuming that the labeling task has primed the target schema for the majority of subjects, the free impression task should further strengthen its activation.[2]

3. *Inference*. Subjects received a list of 33 hypothetical statements pertaining to the character and were asked to rate how likely or frequently each statement would be true of the character. Ratings were made on a 9-point scale ranging from 1 (very unlikely/never) to 9 (very likely/very frequently). As outlined earlier, for the *shēn cáng bú lòu* character, the list included 8 description-based, 22 schema-implicit, and 3 neutral items. For the defensive character, the list included 9 description-based, 21-schema-implicit, and 3 neutral items. Orthogonally to character order, half of the subjects received the items in one random order, the other half in the reverse order.

After subjects finished the inference task, they were informed that they would begin a second part of the experiment shortly. One third of the subjects in each group (the *busy* condition) received the following written instructions, which were intended to distract them from integrating the additional character information they would later receive (see Appendix 4 for the complete instructions):

> Immediately after completing Part 2 of the experiment, you and the other participant(s) in today's session will be asked to take part in a 10- to 15- minute discussion with the researcher, which will be videotaped. . . . The discussion will concern participants' experiences in today's session. You and the other participant(s) will each be asked to speak for approximately 3 minutes about your experiences and reactions during this experiment . . . in front of the videocamera. Therefore, please reflect on your participation experience as you work on Part 2

of the experiment.

When there was only one subject in the session, the subject was also told orally that he or she would still have to speak for 3 minutes in front of the camera, as specified in the instructions.[3]

Another third of the subjects (the *accountable* condition) received instructions emphasizing the need to be accurate in their impressions of the two characters (see Appendix 5):

> Immediately after completing Part 2 of the experiment, you will be asked to complete a final questionnaire asking about the basis of your responses in this part of the experiment. You will be asked to explain the reasons for your impressions of the two characters, and to justify, in detail, the answers you give in this part of the experiment. The researcher will read your responses to the final questionnaire and will ask for clarification if necessary. Therefore, pay close attention to the basis on which you form your final impressions of the two characters and the basis on which you answer the upcoming question booklets . . . so that you will be able to give clear justifications for your responses later.

The remaining third of the subjects constituted the *control* condition. They did not receive any instructions regarding the possibility of a third part to the experiment (Appendix 6).

After receiving their instructions, all subjects proceeded to read the second description of each character (Appendices 7 and 8), which contained behaviors typical of the attribute categories in the first description, behaviors atypical of the attribute categories in the first description, behaviors atypical of the broader personality schema exemplified by the character, and behaviors unrelated to the personality schema. They were given 8 minutes to carefully read the descriptions twice and try to form a clear impression of each character based on both the new information and the old information. As in the first reading task, those who could not finish within 8 minutes were allowed to complete the task. Subjects then performed three tasks for each character in the following order (Appendix 9):

1. *Open-ended impression*. Subjects were asked to write down their impression of the character based on the first and second

descriptions combined. The purpose of this free impression task was the same as that of the first one, that is, to strengthen subjects' impression by asking them to write it down.

2. *Recognition memory.* Subjects were presented with 32 statements about the character and were asked to rate each one according to a 4-point scale. The four points on the scale were: 1 (I am certain the item was not in either of the descriptions), 2 (I think the item was not in either of the descriptions, but I'm not sure), 3 (I think the item was in one of the descriptions, but I'm not sure), and 4 (I am certain the item was in one of the descriptions). Half of the items had previously appeared in one of the two descriptions. (Some items were condensed so that they could be presented in one or two sentences. However, care was taken to preserve the meaning of the original statements.) The other half were new items. Within each category, half described behaviors congruent with the schema in question, and the other half described incongruent behaviors. Half of the subjects received the items in one random order, the other half in the reverse order.

3. *Inference.* Subjects received another list of 33 hypothetical statements pertaining to the character and were asked to rate how likely or frequently each statement would be true of the character, using the same 9-point scale as in the first inference task. As outlined earlier, for the *shēn cáng bú lòu* character, there were 16 description-based, 14 schema-implicit, and 3 neutral items. For the defensive character, there were 18 description-based, 12 schema-implicit, and 3 neutral items. As in the first inference test, half of the subjects received the items in one random order, the other half in the reverse order.

Upon completion of this inference task, subjects received the vocabulary test and, in the case of the bilinguals, the language background questionnaire. After subjects finished, those who expected a third part to the experiment were informed that the experiment had concluded. All subjects then read a written debriefing and were thanked for their participation.

Main Experiment: Results

Possible effects of the two order variables (character order and item order) were examined for each dependent variable. Of the 78 effects of interest,[4] only 3 were significant at the .05 level, which is what would be expected by chance. The two order variables were therefore not considered further, although they were retained as factors in the analyses of variance reported below.

The statistical test for the language effect generally takes the form of a Language of Processing x Language of Schema interaction. A significant interaction indicates that the pattern of responses for the two characters (one based on an English-labeled schema, the other on a Chinese-labeled schema) differs depending on the language used to process the character information (English vs. Chinese).

Labeling

Subjects' choice of adjectives to label the characters depicted in the first set of descriptions and their ratings of the appropriateness of the selected adjectives indicated that the descriptions had activated language-specific personality schemas. When CE-C subjects were asked to select the adjective best describing the character exemplifying the *shēn cáng bú lòu* personality, the majority (55.6%) chose the target adjective *shēn cáng bú lòu*. Similarly, in the two groups using English in the experiment, the adjective most frequently chosen to describe the character exemplifying the defensive personality was the target adjective *defensive*. The level of agreement, however, was lower than that for the *shēn cáng bú lòu* character: 38.9% in the E-E group and 30.6% in the CE-E group.

This last result is rather puzzling, given that the defensive character description and the list of adjectives provided were almost identical to those in the fourth pretest. In that study, 53% of the CE-E group and 53% of the E-E group chose the adjective *defensive* to describe this character. In the present experiment, the next most frequently chosen adjective to describe the defensive character in the E-E group was *insecure* (33.3%). Apparently, therefore, the E-E subjects thought that *insecure* described the defensive character about equally as well as the target adjective. No other adjective was chosen with a frequency approaching that of *defensive* in the CE-E group.

Although the labeling agreement was not as high as expected, especially in the two English-language groups, subjects' *ratings* of the appropriateness of the adjectives revealed that, regardless of the specific adjectives selected, each of the two characters was more codable in the targeted language. Table 1 presents subjects' mean appropriateness ratings for the adjectives selected to describe the two characters. The predicted Language of Processing x Language of Schema interaction emerged, $F(1,96) = 2.96$, $p < .05$.[5] The CE-C group gave higher ratings to their choice of adjective for the character based on the Chinese-specific schema, whereas the E-E and CE-E groups gave higher ratings to their choice of adjective for the character based on the English-specific schema. Although the difference between the ratings for the two characters was negligible in the CE-E group, the CE-E and the E-E groups did not differ significantly in this analysis.

Thus, when the language in which subjects processed a character provided one or two relatively agreed-upon labels for the character's personality type, subjects were more confident about the label selected to describe the character. The results thus indicate that each of the two language-specific personality types, as described in the first character description, was more codable in its corresponding language.

First Inference Test

Items on the first and second inference tests were coded so that, regardless of the implications of the information in the descriptions per se, high scores always reflect inferences congruent with the schema and low scores reflect inferences incongruent with the schema. Tables 2 and 3 present subjects' mean inference ratings for the schema-implicit attributes (attributes contained in the broader personality schema in question but not found in the character description per se) and the description-based attributes (attributes based directly on the character description), respectively. As predicted, there was a significant Language of Processing x Language of Schema interaction for the schema-implicit items, $F(1,96) = 5.27$, $p < .02$. (This interaction was, however, carried primarily by the CE-C and E-E groups. The results from the CE-E group, who processed information in their second language, are discussed in a later section.) There was no Language of Processing x Language of Schema interaction for the description-based items, $F(1,96) = 2.52$, $p > .10$.[6]

In sum, results of the first part of the experiment partially replicated the findings of Hoffman et al. (1986). When CE-C and E-E subjects received information about a character whose personality and behavior conformed to a labeled schema in their language of processing, they were more willing to go beyond the information given and made stronger inferences concerning attributes not specified in the descriptions.

Second Inference Test

The second part of the experiment tested the prediction that subjects who were motivated to form accurate impressions would process additional information about the characters more thoroughly and thus show less reliance on (linguistically activated) schemas in their inferences about the characters than subjects who were cognitively "busy."

Schema-implicit attributes. Table 4 presents mean ratings of the schema-implicit attributes on the second inference test. The overall Language of Processing x Language of Schema interaction (collapsed over the three cognitive set conditions) was marginally significant, $F(1,72) = 3.11$, $p < .10$ (two-tailed). Follow-up analyses revealed that, as predicted, the Language of Processing x Language of Schema interaction was significant in the busy condition $F(1,72) = 5.73$, $p < .01$, but not in the accountable condition, $F < 1$. Also as predicted, the interaction was significantly stronger in the busy condition than in the accountable condition, $F(1,72) = 4.36$, $p < .02$.[7]

Thus, compared to subjects in the busy condition, the tendency for subjects in the accountable condition to make differential inferences based on linguistically activated schemas was significantly attenuated. Subjects in the accountable condition apparently integrated the information in the second set of descriptions into their impressions to a greater extent than did subjects in the busy condition, thus leading to inferences that failed to show a Language of Processing x Language of Schema interaction.

All analyses and comparisons involving the control condition were nonsignificant. The Language of Processing x Language of Schema interaction was not individually significant in the control condition, $F = 1.51$, nor did the strength of the interaction in the control condition differ from either of the other two conditions, $F < 1$ (control vs. busy), and $F = 1.60$ (control vs. accountable).[8]

Description-based attributes. Mean ratings of the description-based items on the second inference test are shown in Table 5. In contrast to the results for the description-based items on the first inference test, the overall Language of Processing x Language of Schema interaction (collapsed over the three cognitive set conditions) was significant, $F(1,72) = 8.63$, $p < .01$.[9] Follow-up analyses showed that the Language of Processing x Language of Schema interaction was individually significant in the busy condition, $F(1,72) = 7.76$, $p < .01$, but not in the accountable condition, $F < 1$. The interaction was significantly stronger in the busy condition than in the accountable condition, $F(1,72) = 5.24$, $p < .05$.

To further examine subjects' description-based inferences, the items were divided into two categories. "Old" description-based items are items based on attributes for which there is evidence in both descriptions (schema-consistent evidence in the first description, and both schema-consistent and schema-inconsistent evidence in the second). "New" description-based items are items based on the attributes for which direct evidence first appears in the second description (which in all cases is schema-inconsistent evidence).

These two types of items showed similar patterns of results. Tables 6 and 7 present subjects' mean ratings of the "old" and the "new" description-based items, respectively. On the "old" description-based items, the Language of Processing x Language of Schema interaction was significant in the busy condition, $F(1,72) = 4.17$, $p < .05$, but not in the accountable condition, $F < 1$. The interaction was marginally stronger in the busy condition than in the accountable condition, $F(1,72) = 2.94$, $p < .10$. Thus, compared to subjects in the accountable condition, those in the busy condition tended to continue to make stronger inferences about the "old" attributes when the language of processing provided a ready label for the character in question.

Similarly, on the "new" description-based items, the Language of Processing x Language of Schema interaction was significant in the busy condition, $F(1,72) = 4.19$, $p < .05$, but not in the accountable condition, $F < 1$. The Language of Processing x Language of Schema x Cognitive Set (busy vs. accountable) interaction was marginally significant, $F(1,72) = 2.67$, $p < .12$. Thus, compared to subjects in the accountable condition, subjects in the busy condition tended to make stronger schema-congruent inferences concerning new attributes when the language of processing provided a ready label for the personality schema, even though the information provided was incongruent with the schema.

In the control condition, the Language of Processing x Language of Schema interaction for the description-based attributes was significant, $F(1,72) = 7.59$, $p < .01$. The strength of the interaction did not differ significantly between the control condition and the busy condition, $F < 1$, but was significantly stronger in the control condition than in the accountable condition, $F(1,72) = 5.14$, $p < .05$. A similar pattern emerged from the results of the "old" and the "new" description-based attributes. The Language of Processing x Language of Schema interaction was significant in the control condition for both the "old" attributes, $F(1,72) = 4.04$, $p < .05$, and the "new" attributes, $F(1,72) = 4.06$, $p < .05$. The interaction was marginally stronger in the control condition than in the accountable condition, $F(1,72) = 2.86$, $p < .10$ for the "old" attributes, and $F(1,72) = 2.60$, $p < .12$ for the "new" attributes. There was no difference between the control and the busy condition in the strength of the interaction for either type of description-based attributes.

Recognition Memory

Previously seen information. Table 8 presents subjects' mean recognition ratings of previously seen schema-congruent information (items appearing in one of the two descriptions and congruent with the schema in question). Table 9 presents mean ratings of previously seen schema-incongruent information (items appearing in the second description but incongruent with the schema).

To examine whether subjects' memory for previously seen information was biased by the linguistically activated schemas, a "schematic processing index" was used in analyzing subjects' recognition ratings. This index was calculated by subtracting the subject's mean recognition rating of previously seen schema-incongruent items from the mean rating of previously seen schema-congruent items. A positive score thus indicates that the subject more confidently remembered the schema-congruent information, whereas a negative score indicates that the subject more confidently remembered the schema-incongruent information. A score of zero indicates that the subject's memory was not biased in either direction by the schema-congruency of the information.

Subjects' mean scores on the schematic processing index are shown in Table 10. The Language of Processing x Language of Schema interaction on this index (collapsed over the three cognitive set conditions) was highly significant, $F(1,72) = 15.27$, $p < .001$. Follow-up analyses showed that the Language of Processing x Language of Schema interaction was individually significant in the busy condition, $F(1,72) = 7.18$, $p < .01$, but not in the accountable condition, $F = 2.00$. The Language of Processing x Language of Schema x Cognitive Set (busy vs. accountable) interaction, however, was nonsignificant, $F < 1$.

An interesting pattern of results can be seen when subjects' memory for the more codable and for the less codable character were considered separately. The mean schematic processing index score for the "highly codable" character, that is, the *shen cang bu lou* character for the Chinese-language group and the defensive character for the English-language groups (collapsed over the three cognitive set conditions), was +.12 and significantly greater than zero, $F(1,72) =$

8.02, $p < .01$. In contrast, the mean schematic processing index score for the "less codable" character, that is, the *shēn cáng bú lòu* character for the English-language groups and the defensive character for the Chinese-language group (collapsed over the three cognitive set conditions), was -.10 and significantly *less* than zero, $F(1,72) = 5.93$, $p < .05$.

The results thus indicate that when information was processed in a language that provides a ready label for the personality type exemplified by the character, subjects more confidently remembered schema-congruent than schema-incongruent information. This was not the case for the character lacking a ready label in the subject's language of processing; in fact, subjects more confidently remembered schema-*in*congruent information about this character. (Essentially the same pattern was observed in all three cognitive set conditions.) This intriguing finding will be discussed later.

The Language of Processing x Language of Schema interaction on the schematic processing index was individually significant in the control condition, $F(1,72) = 7.16$, $p < .01$. Tests for differences in the strength of the interaction between the control condition and the other two conditions, however, were nonsignificant, Fs < 1.

New information. Tables 11 and 12 present subjects' mean recognition ratings for new schema-congruent information (items not appearing in either description but congruent with the schema in question) and new schema-incongruent information (items not appearing in either description and incongruent with the schema), respectively.

As in the previous analyses, subjects' recognition ratings of new information were analyzed in terms of a schematic processing index, defined as the subject's mean rating of new, schema-congruent items minus the mean rating of new, schema-incongruent items. A positive score indicates that the subject less confidently rejected new, schema-congruent items than new, schema-incongruent items; a negative score indicates the reverse. Mean scores on this index are shown in Table 13.

The Language of Processing x Language of Schema interaction (collapsed over the three cognitive set conditions) was not significant, $F < 1$. Follow-up analyses revealed that although the interaction was not significant in the busy condition, $F < 1$, it was marginally significantly in the accountable condition, $F(1,72) = 3.86$, $p < .06$, two-tailed. The Language of Processing x Language of Schema x Cognitive Set (busy vs. accountable) interaction was also marginally significant, $F(1,72) = 3.02$, $p < .10$, two-tailed. As noted, this is due to the fact that the accountable condition tended to show a *stronger* Language of Processing x Language of Schema interaction effect on the new items than the busy condition, contrary to expectations. The mean schematic processing index scores for both the highly codable and the less codable character indicate that, in general, schema-congruent new items were less confidently rejected than schema-incongruent items.

The Language of Processing x Language of Schema interaction was nonsignificant in the control condition, $F < 1$. The strength of the interaction did not differ significantly between the control and busy conditions, $F < 1$, nor between the control and accountable conditions, $F = 2.58$.

Processing Information in a Second Language

Unlike subjects in the CE-C and E-E groups, those in the CE-E group processed information in their second language. Different patterns of data emerged from the two parts of the study for this group. The results suggest that the difference between the schematic processing resulting from the activation of a highly codable schema in one's first versus second language may only be a matter of how fast the schema in question is activated.

While the labeling ratings of the CE-E group did not differ significantly from those of the E-E group, they tended to be in between the other two groups. The CE-E group, however, did make different inferences from the E-E group on both schema-implicit and description-based attributes on the first inference test.[10] Thus, in the first part of the study, the responses of the CE-E group tended, overall, to be more similar to those of the CE-C group than to those of the E-E group. It appears, therefore, that the targeted English-language schema may not (yet) have been fully activated in the CE-E group.

The situation was different in the second part of the experiment. The CE-E and E-E groups did not differ significantly except on the inference ratings for description-based items in the busy condition, and in the comparison between the busy condition and the accountable condition.[11] In these two cases, however, the CE-E group also differed significantly from the CE-C group (in fact, more so than from the E-E group). Most importantly, all of the significant Language of Processing x Language of Schema interactions in the second part of the experiment remain significant when only the CE-E and the CE-C groups are compared. The comparison between the two bilingual groups is a stricter test of the hypotheses, because it involves true random assignment to language conditions and therefore provides a clearer demonstration of linguistic effects.

Thus, unlike the results for the first part of the study, the results for the second part showed that the CE-E group responded more like the E-E group than like the CE-C group. The overall results for the CE-E group suggest that the activation of a linguistically based schema may take longer in one's second language, since the CE-E group showed the predicted effects in the latter part of the experiment but not in the early part. Once activated, however, the schema seems to influence its "second-language users" in much the same way as it influences its "first-language users."

Table 1

Ratings of Adjectives Selected to Describe the Characters

		Language of schema	
Language of processing	Group	Chinese	English
Chinese	CE-C	7.42	7.08
English	CE-E	7.00	7.03
	E-E	6.81	7.28

Note. Ratings were made on 1-to-9 scales.

Table 2

Ratings of Schema-Implicit Attributes: First Inference Test

		Language of schema	
Language of processing	Group	Chinese	English
Chinese	CE-C	6.56	6.19
English	CE-E	6.07	5.74
	E-E	6.21	6.66

Note. Ratings were made on 1-to-9 scales.

Table 3

Ratings of Description-Based Attributes: First Inference Test

		Language of schema	
Language of processing	Group	Chinese	English
Chinese	CE-C	6.59	7.08
English	CE-E	6.54	7.09
	E-E	6.34	7.61

Note. Ratings were made on 1-to-9 scales.

Table 4

Ratings of Schema-Implicit Attributes: Second Inference Test

Language of processing	Group	Language of schema: Chinese	Language of schema: English
		Busy condition	
Chinese	CE-C	5.85	5.13
English	CE-E	5.11	5.31
	E-E	5.47	5.29
		Accountable condition	
Chinese	CE-C	5.60	5.59
English	CE-E	5.62	5.61
	E-E	5.70	5.35
		Control condition	
Chinese	CE-C	5.96	5.50
English	CE-E	5.47	5.44
	E-E	5.39	5.25
		All conditions	
Chinese	CE-C	5.80	5.40
English	CE-E	5.40	5.45
	E-E	5.52	5.30

Note. Ratings were made on 1-to-9 scales.

Table 5

Ratings of Description-Based Attributes: Second Inference Test

		Language of schema	
Language of processing	Group	Chinese	English
		Busy condition	
Chinese	CE-C	5.47	4.41
English	CE-E	4.60	5.01
	E-E	5.34	4.76
		Accountable condition	
Chinese	CE-C	5.26	5.17
English	CE-E	5.40	4.81
	E-E	5.43	5.52
		Control condition	
Chinese	CE-C	5.60	4.71
English	CE-E	5.06	5.21
	E-E	5.00	4.97
		All conditions	
Chinese	CE-C	5.44	4.76
English	CE-E	5.02	5.01
	E-E	5.26	5.08

Note. Ratings were made on 1-to-9 scales.

Table 6

Ratings of "Old" Description-Based Attributes

Language of processing	Group	Language of schema: Chinese	Language of schema: English
		Busy condition	
Chinese	CE-C	5.24	4.95
English	CE-E	4.35	5.49
	E-E	5.08	5.43
		Accountable condition	
Chinese	CE-C	4.95	5.99
English	CE-E	5.40	5.79
	E-E	4.98	6.29
		Control condition	
Chinese	CE-C	5.14	5.51
English	CE-E	4.88	6.04
	E-E	4.32	5.94
		All conditions	
Chinese	CE-C	5.11	5.48
English	CE-E	4.88	5.77
	E-E	4.80	5.89

Note. Ratings were made on 1-to-9 scales.

Table 7

Ratings of "New" Description-Based Attributes

Language of processing	Group	Language of schema	
		Chinese	English
		Busy condition	
Chinese	CE-C	5.70	3.87
English	CE-E	4.85	4.53
	E-E	5.59	4.08
		Accountable condition	
Chinese	CE-C	5.57	4.34
English	CE-E	5.40	3.83
	E-E	5.89	4.75
		Control condition	
Chinese	CE-C	6.06	3.91
English	CE-E	5.23	4.39
	E-E	5.68	4.00
		All conditions	
Chinese	CE-C	5.78	4.04
English	CE-E	5.16	4.25
	E-E	5.72	4.28

Note. Ratings were made on 1-to-9 scales.

Table 8

Recognition Ratings of Previously Seen Schema-Congruent Information

		Language of schema	
Language of processing	Group	Chinese	English
		Busy condition	
Chinese	CE-C	3.54	3.11
English	CE-E	3.43	3.46
	E-E	3.59	3.72
		Accountable condition	
Chinese	CE-C	3.87	3.71
English	CE-E	3.54	3.55
	E-E	3.67	3.74
		Control condition	
Chinese	CE-C	3.82	3.59
English	CE-E	3.50	3.68
	E-E	3.55	3.75
		All conditions	
Chinese	CE-C	3.74	3.47
English	CE-E	3.49	3.56
	E-E	3.60	3.74

Note. Ratings were made on 1-to-4 scales.

Table 9

Recognition Ratings of Previously Seen Schema-Incongruent Information

Language of processing	Group	Language of schema: Chinese	Language of schema: English
		Busy condition	
Chinese	CE-C	3.45	3.45
English	CE-E	3.43	3.35
	E-E	3.60	3.59
		Accountable condition	
Chinese	CE-C	3.65	3.65
English	CE-E	3.59	3.53
	E-E	3.72	3.59
		Control condition	
Chinese	CE-C	3.71	3.71
English	CE-E	3.65	3.62
	E-E	3.76	3.52
		All conditions	
Chinese	CE-C	3.60	3.60
English	CE-E	3.56	3.50
	E-E	3.69	3.57

Note. Ratings were made on 1-to-4 scales.

Table 10

Scores on the Schematic Processing Index: Previously Seen Information

		Language of schema	
Language of processing	Group	Chinese	English
	Busy condition		
Chinese	CE-C	.09	-.34
English	CE-E	.00	.10
	E-E	-.01	.12
	Accountable condition		
Chinese	CE-C	.22	.06
English	CE-E	-.05	.02
	E-E	-.05	.15
	Control condition		
Chinese	CE-C	.12	-.12
English	CE-E	-.15	.06
	E-E	-.21	.23
	All conditions		
Chinese	CE-C	.14	-.13
English	CE-E	-.07	.06
	E-E	-.09	.17

Note. The index reported in this table is the subject's mean rating of the schema congruent items minus his or her mean rating of the schema incongruent items.

Table 11

Recognition Ratings of New Schema-Congruent Information

		Language of schema	
Language of processing	Group	Chinese	English
	Busy condition		
Chinese	CE-C	1.56	1.60
English	CE-E	1.77	1.85
	E-E	1.52	1.56
	Accountable condition		
Chinese	CE-C	1.65	1.47
English	CE-E	1.58	1.78
	E-E	1.34	1.49
	Control condition		
Chinese	CE-C	1.44	1.29
English	CE-E	1.63	1.67
	E-E	1.51	1.53
	All conditions		
Chinese	CE-C	1.55	1.46
English	CE-E	1.66	1.77
	E-E	1.46	1.53

Note. Ratings were made on 1-to-4 scales.

Table 12

Recognition Ratings of New Schema-Incongruent Information

		Language of schema	
Language of processing	Group	Chinese	English
		Busy condition	
Chinese	CE-C	1.22	1.33
English	CE-E	1.59	1.74
	E-E	1.18	1.47
		Accountable condition	
Chinese	CE-C	1.33	1.61
English	CE-E	1.23	1.56
	E-E	1.23	1.49
		Control condition	
Chinese	CE-C	1.22	1.37
English	CE-E	1.26	1.52
	E-E	1.16	1.65
		All conditions	
Chinese	CE-C	1.26	1.44
English	CE-E	1.36	1.61
	E-E	1.19	1.54

Note. Ratings were made on 1-to-4 scales.

Table 13

Scores on the Schematic Processing Index: New Information

		Language of schema	
Language of processing	Group	Chinese	English
		Busy condition	
Chinese	CE-C	.34	.27
English	CE-E	.18	.12
	E-E	.34	.09
		Accountable condition	
Chinese	CE-C	.31	-.15
English	CE-E	.35	.22
	E-E	.12	.00
		Control condition	
Chinese	CE-C	.22	-.07
English	CE-E	.36	.15
	E-E	.35	-.12
		All conditions	
Chinese	CE-C	.29	.02
English	CE-E	.30	.16
	E-E	.27	-.01

Note. The index reported in this table is the subject's mean rating of the schema congruent items minus his or her mean rating of the schema incongruent items.

Discussion: An Interaction Approach to Linguistic Relativity and Person Cognition

This study examined some of the conditions under which linguistic effects on person cognition are activated and attenuated. The first part of the study partially replicated the findings of Hoffman et al. (1986) and demonstrated that the perceiver is more willing to go beyond the information given and make stronger inferences concerning a target's attributes when the target's personality and behavior conform to a labeled schema in the perceiver's first language.

In order to change subjects' impressions of the target, additional information inconsistent with the personality schema that the target exemplified in the first part of the study was provided in the second part of the study. It was hypothesized that when subjects received the additional inconsistent information about a target person to whom a particular language-specific personality schema had been applied, those who were not cognitively busy and were motivated to form accurate impressions would process the additional information more thoroughly and consequently would show greater adjustment of their language-specific initial impressions of the target person. Findings of the study generally supported the hypothesis.

Results for the schema-implicit items on the second inference test showed that the Language of Processing x Language of Schema interaction was individually significant in the busy condition but not in the accountable condition, and that the tendency to make differential inferences based on linguistically activated schemas was stronger in the busy than in the accountable condition. Thus, when cognitively busy subjects made inferences regarding attributes that were not explicitly described but are congruent with the linguistically activated personality schema, they were still differentially biased in the direction of the schema. This suggests that, after receiving the additional information, busy subjects' impression of the character in question continued to be differentially influenced by the schema. On the other hand, when subjects were motivated to be accurate, their tendency to make differential inferences regarding schema-implicit attributes was significantly attenuated. This suggests that the linguistically based influence was lessened to a certain extent.

It sum, when subjects made inferences regarding attributes not explicitly found in the descriptions, those who were cognitively busy were more inclined to differentially engage in schematic processing. The busy subjects' differential inferences may not be unreasonable, given that although there was no evidence consistent with the attributes in question, there was also no inconsistent evidence. Results from the description-based items, however, showed that even when there was inconsistent evidence, the busy subjects still made linguistically based schematic inferences.

The pattern of results that emerged from the analyses of description-based attributes, including both the "old" items (those based on attributes for which there is schema-consistent evidence in the first description and both schema-consistent and -inconsistent evidence in the second) and the "new" items (those based on attributes found in the second description for which there is only schema-inconsistent evidence), is the same as that for the schema-implicit attributes. The Language of Processing x Language of Schema interaction was significant in the busy condition but not in the accountable condition, and stronger in the busy than in the accountable condition.

Compared to subjects in the accountable condition, those in the busy condition continued to make differentially stronger inferences regarding the "old" attributes in the direction of the schema in question, even though evidence inconsistent with these attributes was presented in the second description. It could be argued that subjects in the busy condition gave more weight to the evidence consistent with the linguistically activated schema when they judged whether the character in question would behave as described in the inference items. The differential weighting of the two types of evidence may be due to the fact that when both descriptions are considered, there are more schema-consistent behavioral examples.

The results for the "new" description-based items, however, suggested that busy subjects made linguistically based schematic inferences even when only contradictory evidence existed. Although there was some indication that subjects were aware that there was only schema-inconsistent evidence for the "new" description-based attributes (the mean inference rating for the "new" items was below the midpoint of 5), the Language of Processing x Language of Schema interaction was stronger in the busy than in the accountable condition. Apparently the linguistically activated schema continued to be a relevant basis for the busy subjects' inferences.

When the perceiver is cognitively busy and when the language in which the perceiver processes information has a ready label for the target's personality, additional information inconsistent with the schema has little effect on promoting inferences not biased in the direction of the schema. On the other hand, when the perceiver processes the additional information under different conditions, namely, when he or she is motivated to be accurate, linguistic effects on inference are attenuated. When subjects were alerted to be accurate so that they could justify their responses later, they made inferences that were not differentially biased as a function of the Language of Processing x Language of Schema interaction.

A different pattern of results emerged when control subjects made description-based inferences--their pattern of responses was the same as that of the busy subjects. Not only was the Language of Processing x Language of Schema interaction individually significant in the control condition, the strength of the interaction was significantly stronger in the control condition than in the accountable condition but did not differ between the control and the busy condition. The same basic pattern was true for both the "old" description-based and the "new" description-based items. Thus, when the control subjects had some information regarding the attributes, their inferences were more affected by linguistically based schemas than those of the accountable subjects. Similar to the busy subjects, schema-inconsistent evidence did not prevent the control subjects from continuing to be influenced by linguistically activated schemas.

Whether the perceiver makes linguistically based inferences about the target, therefore, depends not only on whether the perceiver is cognitively busy, but also on whether the inferences have a basis in the information given and whether the perceiver is motivated to be accurate. The cognitively "nonbusy" perceiver who does not necessarily have to be accurate, after receiving information contradicting a linguistically activated personality schema, is not likely to make strong schema-congruent inferences regarding attributes for which there is no information whatsoever. It is different, however, when the same perceiver makes inferences with regard to attributes for which there is some information. Similar to the cognitively busy perceiver, the perceiver may continue to make inferences congruent with the linguistically activated schema even in the face of disconfirming evidence. Linguistically activated schematic processing, in this case, is unaffected when the cognitively nonbusy perceiver is not motivated to be accurate. In contrast, the cognitively nonbusy perceiver who is motivated to be accurate is almost always less, if at all, influenced by linguistically activated schemas after receiving relevant information.

In addition to its effects on inference, cognitive busyness also interacts with language to affect recognition memory for previously seen information. Although the Language of Processing x Language of Schema interaction did not affect the busy and the accountable subjects differentially when the two were compared, the interaction was individually significant in the busy condition but not in the accountable condition. When the language used to process information provides a label for the personality type in question, subjects in the busy condition were especially likely to remember schema-congruent, relative to the schema-incongruent, information, even though they had seen both in the character descriptions. Similar to the English-speaking subjects in the first experiment in Kay's and Kempton's (1984) study, the busy subjects' responses were biased by the availability of a ready label in their language of processing. On the other hand, having adjusted their impression, or perhaps using a modified version of the schema, similar to the English-speaking subjects in Kay's and Kempton's second experiment, the accountable subjects' responses were not differentially biased in the direction of the labeled schema in their language of processing. As for subjects who were not cognitively busy but also not particularly motivated to give accurate responses (the control subjects), their recognition memory was biased in the same direction as that of the busy subjects. Thus, it is necessary that the perceiver be both cognitively nonbusy and motivated to be accurate in order to avoid linguistically based schematic effects on memory.

An interesting pattern of results emerged when the schematic processing index was analyzed separately for the highly codable and less codable characters. There was clear evidence for linguistically based schematic effects on memory. The significantly positive schematic processing score for the highly codable character indicated that subjects more confidently remembered schema-congruent information. The significantly negative schematic processing score for the less codable character indicated that subjects more confidently remembered schema-incongruent information.

It has been found that perceivers attend more to incongruent information when schemas are weak, tentative, or developing, but focus more on congruent information when schemas are well established (e.g., Higgins & Bargh, 1987). Memory is therefore often biased toward congruent information by well established schemas (e.g., Cohen, 1981) but toward incongruent information by weak and tentative ones (e.g., Ruble & Stangor, 1986). In the case of the highly codable character, the language used to process the character description has a ready label for the personality type exemplified by the character, and the corresponding schema is well established in the monolinguals' repertoire of person schemas and more accessible to those bilinguals using the language of processing in question. (It is assumed that bilinguals possess two relatively separate language codes, and that when utilizing one code, there is no strong, automatic tendency to access the other code and its associated schematic knowledge; see Kolers & Gonzalez, 1980.) Thus, recognition memory was biased toward the schema congruent information. On the other hand, when subjects processed information pertaining to the less codable character, their language of processing had no ready label for the personality type exemplified by the character. It is, therefore, probable that the monolinguals, and the bilinguals who temporarily lacked easy access to the schema, would apply a tentative schema, or try to develop one, for the specific personality type depicted in the descriptions. As a result, recognition memory was biased toward the incongruent information.

These results demonstrate an interaction between language and schematic memory. A memory advantage for schema-congruent or schema-incongruent information depends on whether there is a ready label available in subjects' language of processing. It is interesting to note that this result can be compared, to a certain extent, to the finding of Stefflre et al. (1966) that Spanish-speaking and Yucatec-speaking subjects found different colors both easier to communicate and easier to remember. That is, there was a correlation between communication accuracy, a linguistic indicator, and recognition memory. In the present study, differential availability of a ready label for the personality schema in the language of processing, another linguistic indicator, resulted in differential recognition of schema-congruent versus schema-incongruent information.

There were two major findings regarding recognition memory for new information. When the schematic processing index was analyzed separately for the highly codable and less codable characters across cognitive set conditions, there was a significant general bias toward schema-congruent information across the three information processing conditions. Subjects in general less confidently rejected new, schema-congruent information than new, schema-incongruent information.

A rather surprising pattern emerged when cognitive set condition was considered. Contrary to expectations, the Language of Processing x Language of Schema interaction was significant in the accountable condition but not in the busy condition, and the interaction was marginally stronger in the accountable than the busy condition. When the language used to process information provides a label for the personality type in question, subjects who were motivated to be accurate tended to less confidently reject new schema-congruent versus new schema-incongruent information than did cognitively busy subjects, even though they had seen neither.

These findings appear rather puzzling because, if anything, one would expect subjects who were motivated to be accurate to adjust their use of the schema. Similar to people without the benefit of a labeled schema, they should attend more closely to the target's behavior and not show linguistically based differential rejection of new information. This surprising finding, however, could be a result of attempts to deactivate the schema in question.

Priming research has shown that heightened consciousness of the priming task (e.g., Martin, 1986) and unambiguous stimuli (e.g., Herr, Sherman, & Fazio, 1983) may result in contrast effects. Heightened consciousness of the priming task and an unambiguous stimulus both tend to make any incompatibility between the prime and the stimulus especially obvious, and the perceiver overcompensates, contrasting the two (Fiske & Taylor, 1991). Assuming that, as a result of the cognitive set manipulation, the accountable subjects were more attentive to the task at hand than the other subjects, they would be more aware of the impression primed or activated by the first description and might try to adjust, or replace, the schema in question after reading the unambiguously schema-inconsistent second description. In doing so, they may have contrasted the current impression with the initial impression, with the result that both impressions, the initial one and the revised one, became more extreme and more available to consciousness. When asked to indicate whether they had previously seen the new, schema-congruent information, confusion may have resulted because the information agreed with the schema previously applied to the character. And because this schema was both more extreme and more available to consciousness for subjects in this condition, they may have been correspondingly more likely to conclude that the information might have appeared in the (first) description.

To summarize, it was hypothesized that when subjects receive additional inconsistent information about a target person to whom a particular language-specific personality schema has been applied, those who are not cognitively busy and are motivated to form accurate impressions will process the additional information more thoroughly and consequently will show greater adjustment of their language-specific initial impressions of the target person. Generally, the hypothesis was supported by the results.

Subjects' adjustment of their impressions, or lack of it, was demonstrated in their inferences and recognition memory. After receiving schema-inconsistent information, subjects who were cognitively busy preparing for a later discussion continued to make linguistically based schematic inferences, pertaining both to the broader schema and to specific aspects of the schema previously mentioned in the descriptions. Subjects who were neither cognitively busy nor especially motivated to be accurate did not make linguistically based schematic inferences regarding the broader schema but did do so regarding specific aspects of the schema mentioned in the descriptions. In contrast, subjects who were not cognitively busy and were held accountable for their responses were not differentially influenced by linguistically activated schemas when making the same kinds of inferences. Cognitively busy subjects and cognitively nonbusy but unmotivated subjects also showed linguistic effects on recognition memory for previously seen information, whereas nonbusy and motivated subjects did not show this bias. Furthermore, subjects in general better remembered different types of information (schema-congruent or schema-incongruent) depending on whether there is a label for the schema in the subject's language of processing. Although the accountable subjects tended to less confidently reject new schema-congruent information differentially, as pointed out earlier, this could be interpreted as an indication of impression adjustment.

Results of this study extend findings of a previous study on linguistic relativity and person cognition. Hoffman et al. (1986) found that subjects using different languages to process a concrete behavioral description of a character formed different impressions of the character depending on whether their language of processing has a ready label for the personality schema that the character exemplifies. Results of the first part of the present study generally replicated the findings of the previous study.

Following a broad interaction approach, the second part of the study examined the interaction between language, linguistically based schematic processing, and conditions under which such schematic processing will be maintained or attenuated. The necessary, but not sufficient, condition for impression change, and subsequent attenuation of schematic processing, is the availability of additional relevant information about the target. It was found that cognitive busyness, operationalized by having subjects mentally prepare for a later discussion, can help to maintain the influence of linguistically activated schemas on person impression. On the other hand, not being cognitively busy *and* being motivated to form accurate impressions can help to attenuate the influence of the already activated language-specific schemas. Thus, the present study provides clear evidence for linguistically based schematic processing and information on how it interacts with specific processing conditions.

It is of some interest to compare the results for the CE-E group in the present study to those for the CE-E group in Hoffman et al. (1986). The CE-E group in this study responded more like the CE-C group in the first part of the experiment, but more like the E-E group in the second part. In contrast, the CE-E group in the previous study consistently responded more like the E-E group than the CE-C group. The divergent patterns of results probably stemmed in part from a difference in the experimental procedures. The overall results for the CE-E group in this study suggest that the activation of a language-specific schema in one's second language may take longer than when that language-specific schema is in one's first language. Whereas the CE-E subjects in the present study responded immediately after reading the first character description, the CE-E subjects in the Hoffman et al. study did not respond until five days after reading the character descriptions. In view of the results of the present study, it might be that the consistent similarity between the CE-E and the E-E group in Hoffman et al. was due in part to the relatively long activation interval for the schemas in question.

Findings of the present study support a non-absolute version of the linguistic relativity hypothesis in which language guides cognition, but with consideration given to cognitive peculiarities common to people in general. Regardless of the specific language of processing, the perceiver engages in schematic processing when trying to form person impressions. Due to the different categorization systems of different languages, different aspects of a target's behaviors are focused on. The consequence of differential categorization can be seen when perceivers using English or Chinese to process information form different impressions of the same target based on the same set of information and subsequently make different inferences and remember different aspects of the target. The linguistic effects on person cognition only guide the perceiver's impression, which is open to correction with additional relevant information when the perceiver is not cognitively busy and is motivated to be accurate.

In a certain sense, the present study provides only limited evidence in support of the linguistic relativity hypothesis. First, this study has demonstrated only that a language's repertory of labeled categories (its lexicon) interacts with the impression formation process in its speakers and the different conditions of busyness and motivation under which the speakers operate. Whorf believed that a language's grammar embodies the linguistic community's world view. A study involving possible effects of a language's grammar on the thought patterns of its speakers would, therefore, constitute stronger support for the linguistic relativity hypothesis. With few exceptions, however (e.g., Bloom, 1981; Carroll & Casagrande, 1958), the difficulties with the operationalization and measurement of the effects of grammar on thought and behavior as hypothesized by Whorf have been forbidding. Second, only two language-specific adjectives were studied in a relatively artificial setting. In some respects, however, the conditions presented in the study may, in principle, resemble everyday conditions under which impression formation is carried out. People in our modern, complex society are busy individuals. Very often, we form impressions of others when preoccupied with other equally, if not more, important demands. On the other hand, when the target is a potentially important person, e.g., a future in-law or employer, it is important to be accurate. The clear interaction of language, schematic processing, and cognitive busyness observed in the study suggests that under these different everyday cognitive conditions, language may differentially interact with schematic processing.

Notes

[1] Lakoff (e.g., 1987, Lakoff & Johnson, 1980) argued that emotion states are interpreted according to schemas, often metaphorical in nature, some of which are specific to a particular language. Thus, emotion states with language-specific labels were also included in the various pretests.

[2] Because the open-ended impression task was included primarily to strengthen and consolidate subjects' impressions, rather than as a dependent measure, data from this task have not been analyzed and will not be considered further in the present report.

[3] The use of simultaneous tasks, as an alternative cognitive busyness manipulation, was considered. An example of this type of manipulation can be found in Gilbert and Hixon (1991). Subjects in their study were asked to rehearse an eight-digit number while receiving additional information regarding a target person. Although this procedure was effective, simultaneous tasks may not be very realistic to subjects, which may affect subjects' involvement in the experiment. Furthermore, it is not clear if subjects would pay equal attention to both tasks. If subjects pay more attention to the additional information, then they are not truly cognitively busy while processing the additional information. However, if subjects pay more attention to the other task, then any significant results could be due to the fact that subjects simply were not paying attention and therefore did not have the information available for integration. The particular manipulation used in the present experiment was more involving and realistic. Furthermore, it has been previously used and found successful by Gilbert, Pelham, and Krull (1988).

[4] There are six possible interactions of character order and/or item order with Language of Processing x Language of Schema and/or with cognitive set (Language of Processing x Language of Schema x Character Order, Language of Processing x Language of Schema x Item Order, Language of Processing x Language of Schema x Character Order x Cognitive Set, Language of Processing x Language of Schema x Item Order x Cognitive Set, Language of Processing x Language of Schema x Character Order x Item Order, Language of Processing x Language of

Schema x Character Order x Item Order x Cognitive Set) for each of the nine dependent variables (adjective label ratings, ratings of schema-implicit attributes on the first inference test, ratings of description-based attributes on the first inference test, ratings of schema-implicit attributes on the second inference test, ratings of description-based attributes on the second inference test, ratings of "old" description-based attributes, ratings of "new" description-based attributes, recognition ratings of previously seen information, recognition ratings of new information). There are also two possible main effects of the order variables and four interactions of character order and/or item order and/or cognitive set (Character Order x Item Order, Character Order x Cognitive Set, Item Order x Cognitive Set, Character Order x Item Order x Cognitive Set) for each of the four separate analyses of the schematic processing index (scores for previously seen information about the highly codable character, scores for previously seen information about the less codable character, scores for new information about the highly codable character, and scores for new information about the less codable character).

[5] The test for the Language of Processing x Language of Schema interaction, in this and all other analyses, was as follows. Because language of schema is a within-subjects variable, a difference score was first calculated for each subject by subtracting the score for the character based on the English-specific schema from the score for the character based on the Chinese-specific schema. The hypothesized interaction was tested by applying the following contrast to the difference scores just described: +2 (CE-C), -1 (CE-E), -1 (E-E). Because in most cases a directional pattern of means was predicted, one-tailed tests of significance were used unless otherwise specified.

[6] Because no specific predictions were made regarding the description-based items, two-tailed tests of significance were used.

[7] The comparison between the busy and accountable conditions is a "simple" interaction effect, i.e., the Language of Processing x Language of Schema x Cognitive Set interaction when only those two levels of the cognitive set factor are considered. It was tested by applying the following contrast to the difference scores corresponding to the language-of-schema factor: +2 (CE-C), -1 (CE-E), -1 (E-E) for

the busy condition; -2 (CE-C), +1 (CE-E), +1 (E-E) for the accountable condition. Unless indicated otherwise, one-tailed tests were used to evaluate the predicted difference between the two cognitive set conditions.

[8] Comparisons between the control condition and the other two conditions were performed in the same manner described in Note 6. No specific predictions were made regarding differences between the control condition and the other two conditions, and therefore two-tailed tests of significance were used for these comparisons.

[9] Two-tailed tests of significance were again used in analyses involving the description-based attributes, since no effects were specifically predicted.

[10] Differences between the CE-E and E-E groups were tested by applying the following contrast to the difference scores corresponding to the language-of-schema factor: +1 (CE-E), -1 (E-E).

[11] Differences between the CE-E and E-E groups were tested by applying the following contrast to the difference scores corresponding to the language-of-schema factor: +1 (CE-E), -1 (E-E) for the busy condition; -1 (CE-E), +1 (E-E) for the accountable condition.

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Appendix 1

First Description of the *Shēn Cáng Bú Lòu* Character

(English and Chinese versions)

John

John has been working for a large chemical company since he graduated from university 12 years ago. He was unfamiliar with many things when he started the job, and although he often felt lost, he seldom asked for help from his co-workers. He did not want others to have the chance to take advantage of his inexperience. He carefully observed how people handled their work in the office, and tried to understand how the company operates. He is now very competent at his job and is in a fairly high level administrative position.

When he was in university, in addition to his major and minor subjects, John took a wide range of other courses such as economics, music, philosophy, etc. Whenever John did not understand some material in a course, he would often look up information in the library for clarification instead of asking the teaching assistant or other students. He won scholarships every year. Even though he is proud of his academic performance and career achievements, he seldom mentions these things to other people. He does not want to become a target of comparison or for others to be jealous of him. He will only mention his academic and career success if he is specifically asked about it. When people learn about it they often change their views of him for the better.

In his spare time, John engages in a wide variety of activities and is especially interested in carpentry and cars. Last year, he made a coffee table for his sister's new home. However, John only shows his skills and knowledge when it is appropriate and necessary. He is also reluctant to express his opinions. Therefore, people are often amazed when they learn about his skills and knowledge in certain areas. John does not like to ask help from others. For example, John's family experienced some financial difficulties not too long ago. John did not ask help from others. He worked very hard on his own to solve the problem which, fortunately, is over now.

Some time ago, John's friend James drove John and his wife, Mary, to a party in his car, which broke down on the way. James checked the car and was very perplexed when he couldn't figure out what was wrong. John asked to try and after he had inspected the engine, he asked James where the fuse box was located in the car. He replaced a fuse and the car started again. James was very surprised because he had known John for over three years and never knew he could work with car engines. John said with a smile "It was no big deal, I learned it a few years ago from a friend who is a car mechanic." They chatted with friends when they arrived at the party. Halfway through the party, someone insulted John in a conversation. Although John was very angry, he did not show it. He and Mary were about to leave when someone cut himself badly and nobody knew how to stop the bleeding. With everyone watching, John calmly applied standard first-aid procedures to stop the bleeding and dress the wound. John and Mary stayed a little longer and left around 11 p.m.

[Read this description twice, then proceed to the next page.]

John

John 自從十二年前大學畢業後，便一直在一間大規模化學公司工作。初上班時， John 對很多事都不熟悉。雖然辦事時往往不知從何入手，但他很少向同事求助，以免自己缺乏經驗，讓人有機可乘，要自己吃虧。他細心觀察其他人如何處理工作，以求了解公司的運作情形。現在他擔任頗爲高層的行政職位，而且十分勝任。

讀大學時，除了主修及副修科目外， John 修讀的其他科目範圍很廣，例如經濟、音樂、哲學等等。每當 John 不明白教材時，很多時他都會到圖書館找資料闡明而不去問助教或同學。他每年都獲得獎學金。雖然他對自己的學業及事業感到自豪，但他很少向別人提及這些事，以免招人妒忌或成爲比較的目標。他祗會是當別人問及時才提起自己成功的學業及事業。別人知道後往往因此對他另眼相看。

John 在空閒時參與很多不同種類的活動，他尤其對木工及汽車有興趣，他去年就爲他姐姐的新居做了一個茶桌。但 John 只會在適當及有需要時才顯露他的知識及技能，而且他不大願意提出自己的意見，所以當別人知道他有某方面的知識及技能時，往往覺得有點出乎意料之外。 John 並不喜歡向人求助，例如不久前， John 家中出現經濟困難，他並沒有向人求助，自己很努力去解決問題，幸而現在已渡過難關。

不久前， John 的朋友 James 駕車與 John 及 John 太太 Mary 一同參加一個聚會。途中車子壞了。 James 查看後找不到那裡出毛病，正在措手無策之際， John 說讓他試試。他看過機件後便問 James 車上放保險絲的箱子在那裡。他換過保險絲後，車了果然又再能行駛。 James 感到十分驚奇，因爲他認識 John 三年多，卻從不知道他會修理汽車。 John 微笑著說“也沒有什麼，我只是數年前跟一個當汽車修理技工的朋友學習過。”他們三人到達聚會後便和朋友寒喧。聚會中途有人在談話中侮辱 John 。雖然 John 十分憤怒，但他並沒有表露出來。他和 Mary 正要離開時，某人嚴重割傷了自己，沒有人知道如何止血。在聚人圍觀下， John 冷靜地應用標準急救程序止血及包紮傷口。 John 和 Mary 多待了一會，然後在晚上大約十一時離去。

〔閱讀這描繪兩次，然後翻到下一頁〕

Appendix 2

First Description of the Defensive Character

(English and Chinese versions)

Michael

Michael is a university student. One day, he had plans to meet Sue, his girlfriend, and some other friends at the cafeteria for lunch. Before lunch, Michael went to a quiet spot for a cigarette. He ran into Nick and noticed that Nick was looking at his cigarette. Before Nick even said anything, Michael explained that he was nervous about an upcoming exam and that smoking helped him relax. Then Nick told a joke about fat people. Michael took the joke very personally because he was five pounds overweight. He remarked that he didn't appreciate such jokes.

Michael put out his cigarette and went to the cafeteria early. His friend Grace was also early. Grace asked about Michael's parents and brought up the time she saw the two arguing. Grace commented that she didn't like what Michael's mother said to his father during the argument. Michael immediately concluded that Grace disliked his mother and became quite unfriendly towards her. Grace realized that she probably should not have made that remark because she knew Michael sometimes overreacted even to neutral remarks or comments. Sue had once told Grace that one time when she suggested to Michael that he might need more exercise, he snapped at her "Don't tell me how to run my life!" Grace was relieved when the other people started to show up at that point. During lunch, Margaret commented that Michael's jacket was nice and must have been expensive. Michael explained that he bought the jacket on sale and it was of very good quality, so he was not spending money carelessly. Sue knew Michael would say that because he always feels he needs to justify himself. She recalled the time last week when she and Michael went to a bookstore, and Michael was reading a book in the gay section when he saw a friend approaching. Michael explained to the friend that he was just researching a term paper and that he wasn't interested in homosexuality.

After lunch, Michael went to the library to meet Phil, who had promised to proofread his paper. After reading the paper, Phil commented that Michael really needed to work on improving his writing skills. Michael was upset by this comment and said that his writing wasn't that bad. Michael was leaving when the security system at the library exit went off. When the librarian asked Michael to let her check his bag, he told her that he had not stolen any books from the library. After the librarian looked through his bag, she explained that the alarm could have been the result of a malfunction. Michael was offended and was rather rude to the librarian because he felt he had been unjustly accused of something he didn't do.

[Read this description twice, then close the folder and wait for instructions.]

Michael

Michael是個大學生。有一天他約了女朋友Sue及一些朋友到飯堂吃午飯。Michael飯前在一處幽靜的地方吸煙時遇到Nick，留意到Nick在看著他的香煙。在Nick還來不及說些甚麼前，Michael已經解釋他為快要考一個試而感到緊張，所以吸煙來幫助鬆弛。Nick跟著說了一個關於肥胖人的笑話。Michael因為自己超過標準體重五磅而認為這是人身攻擊，於是便說他並不欣賞這類笑話。

Michael弄熄香煙，早了點到飯堂，他的朋友Grace也早到了。Grace問候過Michael的父母後提起那次見到他們倆吵架。Grace說她不喜歡Michael的母親吵架時對他父親說的話。Michael立即斷定Grace討厭他母親，開始對她頗不友善。Grace醒覺自己大概不應說出評語，因為她知道Michael對一些沒有惡意的說話或評語有時也會反應過劇。Sue曾告訴她說有一次她建議Michael或許要多運動時，他搶白她說：“不要教我如何生活！”正在這時，其他人相繼來到，Grace鬆了一口氣。午餐時，Margaret說Michael的外套十分好看，一定是貴價貨。Michael解釋說那外套是減價時買的，而且質料很好，所以他並沒有胡亂揮霍金錢。Sue知道Michael會說這些話，因為他總覺得有需要為自己辯白。她回憶上星期和Michael逛書店，Michael在看一本同性戀書籍時見到一個朋友迎面而來。Michael向朋友解釋說他只是為一份論文做研究，而不是對同性戀有興趣。

午餐後，Michael到圖書館找Phil，因為Phil答應替他校對論文。Phil看過論文後，評說Michael真的需要在寫作方面下點功夫。Michael聽後生氣地說自己的文筆並不是那麼差。Michael離開時，圖書館出口的保安系統響起來。當圖書館管理員要Michael讓她查看書袋時，他說自己沒有在圖書館偷書。管理員看過書袋後解釋可能由於機件失靈，警鐘才會響。Michael被觸怒了，因為他覺得管理員冤枉了自己，所以對她頗為粗魯。

〔閱讀這描繪兩次，然後閉上紙夾等候指示〕

Appendix 3

Labeling Questionnaires, First Open-Ended Impression Task, and First Inference Test

(English and Chinese versions)

Instructions

Carefully read through the following list of adjectives. Select the one adjective from the list that in your opinion provides the most accurate and complete description of John's personality, and write this adjective in the space provided. Some of the adjectives on the list may provide more-or-less adequate descriptions of some of John's behaviors, but not a complete description of his personality. Therefore, please read through every adjective on the list, then very carefully select the one adjective that in your opinion provides the most accurate and complete description of John's personality.

In selecting the adjective, do not concern yourself with the question of why John exhibits the behaviors or feelings he does. That is, you don't need to try to figure out the deep psychological reasons for his behavior. We simply want you to select the adjective that best describes John's personality, whether or not the adjective also explains it. In addition, try to select the one adjective that best describes all aspects of John's personality, not just one aspect of it. (Note: The adjectives are listed in random order.)

conservative
quiet
knowledgeable
humble
talented
shy
modest
reserved

The one adjective from the above list that most accurately and completely describes John's personality, as portrayed in the story, is:

____

You may think that the adjective you have selected describes John very accurately and fully, or you may think that it does not do a very good job of describing him. How accurately and completely does the adjective you just put down describe John's personality? (Circle one number.)

not very accurately and completely 1 2 3 4 5 6 7 8 9 very accurately and completely

[continued]

Optional Question:

If you think that even though the adjective you have selected is the most appropriate one on the list, there is another adjective not on the list that can more accurately and completely describe John's personality, please list it below:

____

How accurately and completely does the second adjective you just put down describe John's personality? (Circle one number.)

not very accurately and completely	1	2	3	4	5	6	7	8	9	very accurately and completely

Instructions

Carefully read through the following list of adjectives. Select the one adjective from the list that in your opinion provides the most accurate and complete description of Michael's personality, and write this adjective in the space provided. Some of the adjectives on the list may provide more-or-less adequate descriptions of some of Michael's behaviors, but not a complete description of his personality. Therefore, please read through every adjective on the list, then very carefully select the one adjective that in your opinion provides the most accurate and complete description of Michael's personality.

In selecting the adjective, do not concern yourself with the question of why Michael exhibits the behaviors or feelings he does. That is, you don't need to try to figure out the deep psychological reasons for his behavior. We simply want you to select the adjective that best describes Michael's personality, whether or not the adjective also explains it. In addition, try to select the one adjective that best describes all aspects of Michael's personality, not just one aspect of it. (Note: The adjectives are listed in random order.)

paranoid
self-centered
defensive
sensitive
insecure
low self-esteem
unconfident
suspicious

The one adjective from the above list that most accurately and completely describes Michael's personality, as portrayed in the story, is:

____

You may think that the adjective you have selected describes Michael very accurately and fully, or you may think that it does not do a very good job of describing him. How accurately and completely does the adjective you just put down describe Michael's personality? (Circle one number.)

not very accurately 1 2 3 4 5 6 7 8 9 very accurately
and completely and completely

[continued]

Optional Question:

If you think that even though the adjective you have selected is the most appropriate one on the list, there is another adjective not on the list that can more accurately and completely describe Michael's personality, please list it below:

____

How accurately and completely does the second adjective you just put down describe Michael's personality? (Circle one number.)

not very accurately and completely	1	2	3	4	5	6	7	8	9	very accurately and completely

Instructions

In the space below, please write a paragraph or so describing your overall impression of John's personality, in your own words. Your goal in this task is not to summarize or repeat the information in the description, but to give your own impression of the kind of person John probably is in general. (If you need more space, continue on the reverse side of this page.)

Instructions

In the space below, please write a paragraph or so describing your overall impression of Michael's personality, in your own words. Your goal in this task is not to summarize or repeat the information in the description, but to give your own impression of the kind of person Michael probably is in general. (If you need more space, continue on the reverse side of this page.)

Instructions

The following pages present a number of hypothetical attributes and behaviors, and ask you to decide how likely or how frequently each attribute or behavior would be true of John. Many of these attributes and behaviors were not explicitly mentioned in the description of John; your task is to decide whether or not they would probably be true of John, based on the impression you have formed of his personality. Please answer each question by circling a number on the scale provided.

1. Would John dislike compliments?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

2. Would John believe his knowledge and capabilities are about average?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

3. Does John like to be alone?

Never 1 2 3 4 5 6 7 8 9 Very frequently

4. Imagine that John attends a meeting of a large organization which he belongs to. Would most of the members there not know who John is?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

5. Would John enjoy reading stories about possible technological advances in the 21st century?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

6. Imagine that John was still very busy with a proposal when he was assigned another project, and both have to be finished in a short time. Would John try to get everything done by himself instead of asking help from his colleagues?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

7. Imagine that John won an essay competition when he was in university. Would most people who attended the prize presentation be able to recall who John was long after the presentation?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

8. Would John be a very well-travelled person?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

9. Does John tend to be very inconspicuous?

Never 1 2 3 4 5 6 7 8 9 Very frequently

10. Would John help to mediate others' personal problems?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

11. Would John think that it is unimportant for others to have a high regard for him?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

12. Imagine that John is very pleased because he has learned that the company's executive board is very happy with his recent performance. Would others be unable to tell that John is in a good mood?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

13. Would John make friends with people without first knowing a lot about them?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

14. Imagine that John's colleague is having problems with a project he is working on and the project is in an area which John knows quite well. Would John offer to help that colleague?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

15. Does John talk about what he knows?

Never 1 2 3 4 5 6 7 8 9 Very frequently

16. Imagine that John attended a high school reunion. Would most of the people there be unable to remember who he was?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

17. Does John share his opinions with others?

Never 1 2 3 4 5 6 7 8 9 Very frequently

18. Do people tend to forget John's name after they have just met him?

Never 1 2 3 4 5 6 7 8 9 Very frequently

19. Does John dislike others bothering him with their problems?

Never 1 2 3 4 5 6 7 8 9 Very frequently

20. Does John try to keep in close contact with his friends?

Never 1 2 3 4 5 6 7 8 9 Very frequently

21. Would many of John's friends who are much younger than he behave in ways different from John?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

22. Imagine that John took part in Parents' Day at his daughter's school at the beginning of the school year, and won one of the events. Would other people present at the event have forgotten John at the end of the school year?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

23. Does John quarrel with others?

Never 1 2 3 4 5 6 7 8 9 Very frequently

24. Imagine that John's colleague Desmond invited John to his retirement party and he does not know that John is good at carpentry. Would John make something himself as a retirement present because he knows Desmond would be surprised by his carpentry skills?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

25. Imagine that John is at a social function attended mainly by people he does not know. Would John introduce himself to others there so that they would know who he is?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

26. Does John like to spend time by himself?

Never 1 2 3 4 5 6 7 8 9 Very frequently

27. Would John be very good at keeping secrets?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

28. Does John like to call people's attention to his successes?

Never 1 2 3 4 5 6 7 8 9 Very frequently

29. Imagine that John is thinking of giving a donation to a local charitable organization, and he is trying to find out more about it because he wants to know how his donation will be spent. Would John quietly gather information about the organization so that others would not be aware of his intention?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

30. Does John display his feelings on his face?

Never 1 2 3 4 5 6 7 8 9 Very frequently

31. Imagine that John attends a function organized by his wife Mary's colleagues. Would John have left a deep impression on most of Mary's colleagues by the end of the function?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

32. Imagine that John is with a group of people and someone mentions a film she has seen. Assuming that John knows something about that film, would he keep it to himself and not share it with the other people there?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

33. Would John enjoy camping?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

Instructions

The following pages present a number of hypothetical attributes and behaviors, and ask you to decide how likely or how frequently each attribute or behavior would be true of Michael. Many of these attributes and behaviors were not explicitly mentioned in the description of Michael; your task is to decide whether or not they would probably be true of Michael, based on the impression you have formed of his personality. Please answer each question by circling a number on the scale provided.

1. Would Michael enjoy attending cooking classes?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

2. Imagine that Michael is attending his girlfriend's family reunion with her. Would Michael not feel neglected even if his girlfriend spent a lot of time talking to relatives she had not seen for years?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

3. Does Michael overreact to minor events?

Never 1 2 3 4 5 6 7 8 9 Very frequently

4. Does Michael do things on the spur of the moment?

Never 1 2 3 4 5 6 7 8 9 Very frequently

5. Even when Michael has studied very hard for a test, would he be unsure if he will pass?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

6. Would Michael enjoy going to the opera?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

7. Would Michael think that he can do most things better than his friends can?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

8. Would Michael be rigid in his opinions?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

9. Would Michael want constant attention from his girlfriend and family?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

10. Imagine that Michael is talking to a person at an information booth sponsored by a racist group, when his friend Leo sees Michael and walks over. Would Michael feel no particular need to explain to Leo what he was doing there?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

11. Does Michael make friends easily?

Never 1 2 3 4 5 6 7 8 9 Very frequently

12. Imagine that Michael did not turn in an assignment because he was sick. Would Michael think that there was no need for him to explain to his friends why he didn't do the assignment?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

13. Imagine that Michael is having lunch with some people and the group starts to talk about the issue of Canadian unity. Assuming that Michael has some ideas on the issue, would Michael not say much in the discussion?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

14. Does Michael feel very relaxed in social gatherings?

Never 1 2 3 4 5 6 7 8 9 Very frequently

15. Does Michael take others' feelings or circumstances into consideration?

Never 1 2 3 4 5 6 7 8 9 Very frequently

16. Imagine that Michael has dropped a course that he has no interest in. Would Michael not bother to explain to his friends why he dropped the course?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

17. Would Michael be reluctant to apologize even when he knows he is at fault?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

18. Imagine that Michael's friend wants to buy a compact disc player and he asks Michael if he has any suggestions. Assume that Michael is very satisfied with the player he has but he is not sure if his friend would enjoy it as much as he does. Would Michael keep his opinion to himself and not make any specific recommendations because he doesn't want to be blamed if later his friend is not satisfied with the player?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

19. Would Michael have a good sense of humor?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

20. Would Michael suspect that someone thought he was short if they asked him how tall he was?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

21. Imagine that Michael has just given a class presentation. Would Michael think that the professor was satisfied with his performance?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

22. Does Michael distrust what others tell him?

Never 1 2 3 4 5 6 7 8 9 Very frequently

23. Imagine that Michael is walking into the campaign office of an unpopular political group with one of its supporters, when he sees a friend approaching. Would Michael explain to his friend why he is going into the campaign office?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

24. Would Michael enjoy attending parties and making new friends?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

25. Would Michael know quite a bit about sports?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

26. Would Michael dislike group activities?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

27. Is Michael a trusting person?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

28. Imagine that Michael is discussing a group project with his team, and another member of the group points out some difficulties with Michael's approach to the project. Would Michael take offense with what the person has said?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

29. Imagine that Michael is in a class discussion. Would Michael listen attentively to others before giving his own opinions?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

30. Does Michael worry that he might lack the ability to obtain a university degree?

Never 1 2 3 4 5 6 7 8 9 Very frequently

31. Imagine that Michael's friend asks him to help with a research project. Would Michael ask very carefully what he has to do before deciding whether he wants to help or not?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

32. Would Michael avoid giving his suggestions whenever there is a chance that he could be held responsible for the outcome of an event?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

33. Would Michael not easily be ruffled by criticism?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

指示

留心閱覽以下的形容詞表。從表中選擇一個您認為最能準確及全面形容 John 的性格的形容詞，然後將該形容詞寫在指定的空白處。一些列在表上的形容詞可能只是或多或少適合形容 John 部份的行為，但未能全面地形容他的性格。所以請看遍表內每一個形容詞，然後極留心選擇那一個您認為是最能準確及全面形容 John 的性格的形容詞。

在選擇形容詞時，您毋須考慮為甚麼John 的行為或感受會如此，即是，您不需要考慮到任何有關他的行為的內在心理因素，我們只是想你選出那個最佳形容John 的性格的形容詞，而那形容詞並無必要亦同時解釋他的性格。再者，盡量選擇那一個最佳形容 John 的性格所有各方面（而不只是某方面）的形容詞。（按：列出的形容詞次序不分先後）。

沉默寡言
實際
深藏不露
能幹
不愛炫耀自己
離羣
謙虛
博學多才

以上表內最能準確及全面形容在故事中 John 的性格的一個形容詞是：

____

您或許會認為您所選的形容詞十分準確及全面形容 John ，又或許您會認為它形容 John 的性格仍不夠恰當。您剛寫下的形容詞能夠多準確及全面形容 John 的性格？（請圈其中一個數字）

不甚準確及 不甚全面	1	2	3	4	5	6	7	8	9	極為準確及 極全面

（轉下頁）

非必答題

如您認爲雖然您所選擇的形容詞已是表內最適合的一個，但是有另一個不被列在表內，而又能更準確及全面形容John的性格的形容詞，請寫下來：

____

您剛寫下的第二個形容詞能夠多準確及全面形容John的性格？（請圈其中一個數字）

不甚準確及 不甚全面	1	2	3	4	5	6	7	8	9	極爲準確及 極全面

指示

留心閱覽以下的形容詞表。從表中選擇一個您認為最能準確及全面形容 Michael 的性格的形容詞，然後將該形容詞寫在指定的空白處。一些列在表上的形容詞可能只是或多或少適合形容 Michael 部份的行為，但未能全面地形容他的性格。所以請看過表內每一個形容詞，然後極留心選擇那一個您認為是最能準確及全面形容 Michael 的性格的形容詞。

在選擇形容詞時，您毋須考慮為甚麼Michael 的行為或感受會如此，即是，您不需要考慮到任何有關他的行為的內在心理因素，我們只是想你選出那個最佳形容Michael 的性格的形容詞，而那形容詞並無必要亦同時解釋他的性格。再者，盡量選擇那一個最佳形容 Michael 的性格所有各方面（而不只是某方面）的形容詞。（按：列出的形容詞次序不分先後）。

心虛
偏激
敏感
主觀
爱面子
缺乏自信
多疑
心胸窄

以上表內最能準確及全面形容在故事中 Michael 的性格的一個形容詞是：

____

您或許會認為您所選的形容詞十分準確及全面形容 Michael ，又或許您會認為它形容 Michael 的性格仍不夠恰當。您剛寫下的形容詞能夠多準確及全面形容 Michael 的性格？（請圈其中一個數字）

不甚準確及不甚全面	1	2	3	4	5	6	7	8	9	極為準確及極全面

（轉下頁）

非必答題

如您認爲雖然您所選擇的形容詞已是表內最適合的一個，但是有另一個不被列在表內，而又能更準確及全面形容Michael的性格的形容詞，請寫下來：

____

您剛寫下的第二個形容詞能夠多準確及全面形容Michael的性格？（請圈其中一個數字）

不甚準確及 不甚全面	1	2	3	4	5	6	7	8	9	極爲準確及 極全面

指示

在以下的空白處，請用您自己的措辭寫一段左右的文字形容您對John的性格的全面印象。您做這件工作的目標不是概述或重複描繪中的資料，而是提出您自己對John可能大概是那類人的印象。（如您需要更多空位，在這頁反面繼續。）

指示

在以下的空白處，請用您自己的措辭寫一段左右的文字形容您對Michael的性格的全面印象。您做這件工作的目標不是概述或重複描繪中的資料，而是提出您自己對Michael可能大概是那類人的印象。（如您需要更多空位，在這頁反面繼續。）

指示

接著的數頁是一些假定的品性及行爲。判斷John會有每一項品性及行爲的可能性或次數。其中很多的品性及行爲並沒有明確地在John的描繪中被提及過，您的工作是根據您對John的性格已有的印象，判斷究竟John是否會*可能*有這些品性及行爲。回答個別問題時，請在所提供的尺度上圈一個數字。

1. John會不喜歡別人讚賞他嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

2. John會相信自己的知識及能力和一般人相約嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

3. John會喜歡獨處嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

4. 試像想John是一個大組織的會員，他出席該組織的會議。大部份在場的會員會不知道他是誰嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

5. John會樂於閱讀有關21世紀時可能達到的科技進展的故事嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

6. 試想像John正在忙於準備一份計劃書時，他又被指派另一份工作，而兩者都要在短期內完成。John會不向同事求助，反而自己盡量完成所有工作嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

7. 試想像John唸大學時贏了一場徵文比賽。大部份參觀頒獎禮的人會事後很久仍記得John是誰嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

8. John會是個旅遊經驗豐富的人嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

9. John會是毫不顯眼的嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

10. John會協助調解別人的私人問題嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

11. John會認爲別人是否敬重他並不重要嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

12. 試想像John感到十分愉快因爲他得知公司的董事局十分滿意他最近的表現。其他人會無法知道John情緒好嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

13. John會還沒了解別人的爲人便和他們做朋友嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

14. 試想像John的一個同事進行一項計劃時遇到困難，而John又十分熟悉有關那方面的工作。John會提出幫助那同事嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

15. John會談及自己認識的事情嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

16. 試想像John參加一個高中老同學聚會。那裡大部份人都會無法記起John是誰嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

17. John會向別人提出自己的看法嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

18. 剛認識John的人會忘記他的名字嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

19. John會不喜歡別人拿他們的問題來麻煩他嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

20. John會盡量和朋友們保持密切聯系嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

21. 很多比John年輕得多的朋友會和John的言行不相近嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

22. 試想像John參加女兒學校學期初舉辦的家長日，並贏了當日一個項目。那項目在場的人會在學期末便已忘記John是誰嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

23. John會跟別人吵架嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

24. 試想像John的同事Desmond邀請他到自己的退休興祝會，而他並不知道John的木工了得。John因爲知道Desmond會對他竟然曉得工木而感到驚奇，所以會自己動手做一份退休禮物給他嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

25. 試想像John正在參加一個社交聚會，出席的人多和他不相識。John會向其他人自我介紹讓別人知道他是誰嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

26. John會喜歡獨自消磨時間嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

27. John會很能守秘密嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

28. John會喜歡叫人注意自己的成功嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

29. 試想像John正在考慮捐錢給一個慈善機構，他正盡量找出更多關於那機構的事，因為他想知道他的捐款的用途。John會悄悄地搜集資料，不叫別人知道他想做甚麼嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

30. John會將喜怒盡現在面上嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

31. 試想像John參加一個由他太太Mary的同事安排的聚會。到聚會完結時，John會在大部份Mary的同事心目中留下深刻印象嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

32. 試想像John和一班人一起時，有人提起她看過的一部電影。假設John知道一些關於那部片的事，他會將自己所知收起來不向他們提出嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

33. John會樂於露營嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

指示

接著的數頁是一些假定的品性及行為。判斷Michael會有每一項品性及行為的可能性或次數。其中很多的品性及行為並沒有明確地在Michael的描繪中被提及過，您的工作是根據您對Michael的性格已有的印象，判斷究竟Michael是否會可能有這些品性及行為。回答個別問題時，請在所提供的尺度上圈一個數字。

1. Michael會樂於上烹飪課嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

2. 試想像Michael和女友正在參加她的家庭聚會。就算他的女友花很多時間和多年不見的親戚談話，Michael會仍不覺得被冷落嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

3. Michael會對一些小事反應過劇嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

4. Michael會憑著一時的興緻做事嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

5. 就算Michael很用功讀書準備測驗，他會仍不肯定自己會否合格嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

6. Michael會樂於去聽歌劇嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

7. Michael會認為很多事他都做得比朋友好嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

8. Michael會堅持己見嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

9. Michael會要女朋友及家人經常不斷的關注他嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

10. 試想像Michael和某個種族主義團體咨詢攤位的主持人在談話時，Michael的朋友Leo看見了他並向他走過去。Michael會覺得沒有任何必要向Leo解釋他在那裡幹甚麼嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

11. Michael會容易交到朋友嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

12. 試想像Michael因病沒有交一份功課。Michael會認爲沒有需要向朋友解釋自己爲甚麼沒做功課嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

13. 試想像Michael和一些人在吃午餐，大家談及加拿大統一的問題。假設Michael對這問題有些意見，他會在討論中甚少發言嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

14. Michael會在社交聚會中感到十分輕鬆嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

15. Michael會顧及別人的環境或感受嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

16. 試想像Michael對某科目不感興趣，所以決定退讀。Michael會不廢勁去向朋友解釋自己爲甚麼退讀那一科嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

17. 就算Michael明知是自己錯也會不願道謙嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

18. 試想像Michael的朋友想買一套鐳射音響組合，他問Michael有甚麼提議。假設Michael對自己擁有的那個組合很滿意，但他不知道那朋友會否跟他一樣喜愛同一組合。Michael會爲了避免日後如果那朋友對組合不滿意時歸咎他而不提出自己的主張或推薦任何牌子嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

19. Michael會很有幽默感嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

20. 當人問Michael有多高時，他會懷疑別人在想他矮嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

21. 試想像Michael剛在班中描述自己搜集到的資科。Michael會認為教授對自己的表現感到滿意嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

22. Michael會不相信別人的說話嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

23. 試想像Michael和一個不受歡迎的政治黨派的支持者步進那黨派的推廣處時，見到一個朋友迎面而來。Michael會向那朋友解釋自己為甚麼進入那推廣處嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

24. Michael會樂於參加聚會及結交朋友嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

25. Michael會對體育運動頗有認識嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

26. Michael會不喜歡團體活動嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

27. Michael會是個很容易相信別人的人嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

28. 試想像Michael正在討論一份小組功課，其中一名組員指出Michael做這份功課的方針存在的一些問題。Michael會被那人所說的話觸怒嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

29. 試想像Michael正在參與班裡的討論。Michael會留心聆聽別人的說話後才提出自己的見解嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

30. Michael會擔心自己可能沒能力考取大學文憑嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

31. 試想像Michael的朋友要求他幫忙完成一個研究計劃。Michael會十分小心問清楚自己究竟要做甚麼後才決定會否幫忙嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

32. 每當有可能要對事情的結果負責任時，Michael都會避免提供自己的意見嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

33. Michael會不輕易因為別人的批評而感到懊惱嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

Appendix 4

Information Processing Manipulations: Busy Condition

(English and Chinese versions)

Instructions

This is Part 2 of the experiment, consisting of the materials in Folders 5, 6, 7, and 8. Folder 5 contains further descriptions of the same two characters you read about earlier. Carefully read each description two times. Try to form a clear impression of each character, based on the information in the description you read earlier and the information in the new description. After you have finished reading the descriptions, you will proceed to the question booklets in the remaining three folders.

Immediately after completing Part 2 of the experiment, you and the other participant(s) in today's session will be asked to take part in a 10- to 15-minute discussion with the researcher, which will be videotaped. The discussion and videotaping will take place in another room. The discussion will concern participants' experiences in today's session. You and the other participant(s) will each be asked to speak for approximately 3 minutes about your experiences and reactions during this experiment. Each of you will take turns describing your experiences and reactions in front of the videocamera. Therefore, please reflect on your participation experience as you work on Part 2 of the experiment. The videotaped discussions are an important part of our data base and will also provide us with information on how to improve the design of later experiments in this project. The tapes will be viewed and analyzed by the team of researchers working on this project.

Please turn this page over to indicate that you have finished reading these instructions, and wait for a signal before proceeding. Thank you.

指示

這是實驗的第二部份，由第五、六、七及八紙夾內的資料組成。第五紙夾內的是您剛才閱讀過的兩個人物的進一步描繪。留心閱讀每一個描繪兩次。根據您剛才讀過的描繪中的資料和在新描繪中的資料盡量確定您對每一個人物的印象。當您閱讀過描繪後，您會進一步回答在其餘三個紙夾內的問題小冊。

當您完成第二部份實驗後，您和今天這實驗時間的其他參加者會立刻被要求和研究員一起參與一個10至15分鐘的討論。這討論將會被拍攝下來。討論及拍攝過程將會在另一個房間內進行。討論內容將會有關參加者在今天的實驗時間內的體驗。您和其他參加者每人會被要求用大約三分鐘的時間說出您對這實驗的體驗及反應。您們每人會依次序在攝影機前序述您的體驗及反應。所以，請您在進行第二部份實驗時思考一下您今次參與的體驗。拍攝下來的討論是我們資料檔案重要的一部份，同時亦提供改進這研究以後部份的實驗設計的資料。合作進行研究計劃的研究員將會觀看及分析這錄影帶。

請將這頁翻轉來表示您已看完這篇指示，然後等候訊號才繼續。多謝

Appendix 5

Information Processing Manipulation: Accountable Condition

(English and Chinese versions)

Instructions

This is Part 2 of the experiment, consisting of the materials in Folders 5, 6, 7, and 8. Folder 5 contains further descriptions of the same two characters you read about earlier. Carefully read each description two times. Try to form a clear impression of each character, based on the information in the description you read earlier *and* the information in the new description. After you have finished reading the descriptions, you will proceed to the question booklets in the remaining three folders.

Immediately after completing Part 2 of the experiment, you will be asked to complete a final questionnaire asking about the basis of your responses in this part of the experiment. You will be asked to explain the reasons for your impressions of the two characters, and to justify, in detail, the answers you give in this part of the experiment. The researcher will read your responses to the final questionnaire and will ask for clarification if necessary. Therefore, pay close attention to the basis on which you form your final impressions of the two characters and the basis on which you answer the upcoming question booklets in Folders 6, 7, and 8, so that you will be able to give clear justifications for your responses later.

Please turn this page over to indicate that you have finished reading these instructions, and wait for a signal before proceeding. Thank you.

指示

這是實驗的第二部份，由第五、六、七及八紙夾內的資料組成。第五紙夾內的是您剛才閱讀過的兩個人物的進一步描繪。留心閱讀每一個描繪兩次。根據您剛才讀過的描繪中的資料和在新描繪中的資料盡量確定您對每一個人物的印象。當您閱讀過描繪後，您會進一步回答在其餘三個紙夾內的問題小冊。

當您完成第二部份實驗後，您會立刻被要求完成最後一份問卷，問及有關您在這部份實驗中的答案的根據。您會被要求解釋您對兩個人物的印象的理由，以及詳細辯白您在這部份實驗中的答案。研究員會閱讀在最後問卷中您的回答，同時如有需要，將會要求您闡明。所以盡量留心您對兩個人物的最後印象有何根據，以及您將要回答的第六、七、及八紙夾的問題小冊的答案的根據，以便稍後您能清楚辯白您的回答。

請將這頁翻轉來表示您已看完這篇指示，然後等候訊號才繼續。多謝

Appendix 6

Information Processing Manipulations: Control Condition

(English and Chinese versions)

Instructions

This is Part 2 of the experiment, consisting of the materials in Folders 5, 6, 7, and 8. Folder 5 contains further descriptions of the same two characters you read about earlier. Carefully read each description two times. Try to form a clear impression of each character, based on the information in the description you read earlier *and* the information in the new description. After you have finished reading the descriptions, you will proceed to the question booklets in the remaining three folders.

Please turn this page over to indicate that you have finished reading these instructions, and wait for a signal before proceeding. Thank you.

指示

這是實驗的第二部份，由第五、六、七及八紙夾內的資料組成。第五紙夾內的是您剛才閱讀過的兩個人物的進一步描繪。留心閱讀每一個描繪兩次。根據您剛才讀過的描繪中的資料和在新描繪中的資料盡量確定您對每一個人物的印象。當您閱讀過描繪後，您會進一步回答在其餘三個紙夾內的問題小冊。

請將這頁翻轉來表示您已看完這篇指示，然後等候訊號才繼續。多謝

Appendix 7

Second Description of the *Shēn Cáng Bú Lòu* Character

(English and Chinese versions)

John

One day, John had lunch with some people from the office. The group started to talk about Troy, a recent MBA graduate from the Harvard School of Business, whom the company hired the month before. Everyone in the group agreed that Troy was arrogant, rude, and very difficult to work with. John felt the same about Troy, and he told others how Troy had been very impolite to him even when he was asking John for help.

Then George from John's department started to talk about photography. John knows a lot about photography and he noticed that George was wrong about some of the things he said. John concluded that George was probably trying to impress the others. John did not say much during the conversation because he thought there was no need for him to expose George and point out what he was doing. John has noticed on several occasions that George has tried to impress others by showing his knowledge in different areas, but he always gives the wrong information. Although John does not think highly of George, he does not tell others how he feels because George is in his department and he does not want to make things difficult at work.

On their way back to the office, Ron, who knows that John loves science fiction, chatted with John about a new science fiction novel he read recently. After lunch, John met with Mr. MacLeod, the vice president of the company. Mr. MacLeod told John that he would like him to take on a new project. However, the project was in an area with which John is unfamiliar and it had to be finished in a very short time. After thinking about the project for a few days, John was very doubtful whether he would be able to do an adequate job in the given time. He decided to ask his colleague, Derrick, for advice and suggestions. During their first meeting, Derrick made a suggestion which John thought was very unsound and he commented that it was an absurd idea. John regretted his remark almost immediately. Although John apologized, Derrick was still a little upset about it and the meeting didn't go very well.

John and his wife, Mary, were invited to the company's annual barbecue at a nearby lake. Although John was quite busy with work, he attended the barbecue because he has always liked the outdoors. He participates in various outdoor activities ranging from skiing to fishing. He even started his own outdoor vegetable garden. John did not know anything about gardening, and he knew he needed advice from an experienced gardener in order to succeed. Therefore, he asked around the office to see if anyone would be able to give him advice. Mr. MacLeod told him that his wife had been into gardening for years and could probably help him out. With the help of Mrs. MacLeod, John started his own vegetable patch in his garden.

On their way to the barbecue, John and Mary talked about their travel plans for their holiday in a few months. Both of them love to travel and they have been to many different countries before. When they arrived at the barbecue, they joined some people in conversation. The

[continued on the next page . . .]

group started to talk about squash, a sport that John doesn't know anything about. In order not to appear ignorant, John changed the topic to his favorite sport, golf, and started talking about various golfing techniques, and how he had won several amateur championships. In the middle of the barbecue, someone hinted that John was probably incapable of finishing the project Mr. MacLeod assigned him. John left early that day and everyone could tell he was very upset about the comment. In fact, John was so obviously offended by the comment that Mr. MacLeod had to talk to him and calm him down before John left. After the barbecue, John decided that he would not ask help from anyone in the company on the project. He worked very hard continuously for almost a month on the project. John gave Mr. MacLeod his proposal for the project several days ago and is waiting to hear from him. Although John knows he has done his best on the proposal, he is quite worried that it may still be unsatisfactory.

[Read this description twice, then proceed to the next description.]

John

有一天，John和同事吃午餐。大家談及公司上月僱用，剛獲哈佛大學工商管理碩士的Troy。大家都同意Troy傲慢粗魯，很難和他合作。John對Troy亦有同感。他告訴其他人Troy向他求助時亦十分沒禮貌。

之後，和John同一部門的George開始談及攝影。John對攝影很有認識。他發覺一些George談及的事是錯的。John作出的結論是George可能想博取大家好感。John並沒有說什麼，因爲他認爲自己沒有必要揭穿George的所爲。John曾數次發現George顯露自己在各方面的知識來博人好感，但他的資料總是錯誤百出。雖然John對George沒有什麼好感，但他並沒有向別人說出自己的觀感，因爲George和自己在同一部門工作，他不想在工作上產生困難。

Ron知道John喜爱看科幻小說，在大家回公司途中，他和John談及自己最近看過的一本科幻小說。午餐後，John和公司的副總裁Mr. MacLeod見面。Mr. MacLeod希望John負責一個新計劃，但John對這計劃有關的範圍認識不多，而且這計劃需要在很短時間內完成。John考慮數日後，十分懷疑自己能否在規定的時間內做出令人滿意的成績。他決定向同事Derrick徵求意見及提議。Derrick在他們第一次開會時，提出了一個John認爲十分不好的建議。他評說那是一個荒謬的意見。John幾乎立刻對自己所說的話感到後悔。雖然他向Derrick道歉過，但Derrick仍有點不高興，而他們的會議進行得並不理想。

John和太太Mary被邀請到公司在附近湖邊舉行的週年燒烤會。雖然John工作頗爲忙碌，但他還是應邀，因爲他一向喜爱户外，他參與的各種户外活動包括滑雪及釣魚等等。他甚至自己在户外開闢了一個小菜園。John對如何種植蔬菜一無所知，他知道如果要成功就必需要有經驗的人加以指導。所以他在公司四處問別人能否給他點建議。Mr. MacLeod告訴他說自己的太太有多年種植經驗，或許能幫助他。在Mrs. MacLeod的幫助下，John在自己的花園中開闢了一個菜園。

John和Mary到燒烤會途中談及他們數月後的假期旅遊計劃。他倆爱好旅遊，而且曾到過多個國家。他們到達燒烤會後便和其他人聊天。大家開始談及壁球。John對這運動一無所知，爲了不想在大家面前顯得無知，John把話題轉到他最喜爱的哥爾夫球運動。他談及多種不同的哥爾夫球技巧及自己如何贏了數個業餘比賽。在燒烤會半途，有人暗示John可能沒有能力完成Mr. MacLeod指派給他的計劃。John那天很早便離開燒烤會，大家都能看得出他爲了那些話而十分不高興。Mr. MacLeod甚至需要在他離去前勸他冷靜下來，因爲John很明顯地爲那番話而生氣。燒烤會後，John決定不會要求任何同事協助完成那計劃。他爲那計劃不斷努力了近一個月。數日前，他遞交了計劃的提議書給Mr. MacLeod，現在正等待他的回覆。雖然John知道自己已盡了力，但他頗擔心建議書可能仍不夠理想。

〔閱讀這描繪兩次，然後翻到下一頁〕

Appendix 8

Second Description of the Defensive Character

(English and Chinese versions)

Michael

Several weeks ago, Michael met with his work group in marketing class to discuss a group presentation. He went to the meeting after writing a midterm. He was in a fairly good mood because he thought the exam was fair and he had done very well on it. In the meeting, Michael objected to Wayne's suggestion of telling a few jokes to brighten up the presentation. Wayne responded to Michael, "Don't be such a bore." Michael told him that he was not a bore and was quite upset for the remainder of the meeting. After the meeting, another member of the group, Gary, talked to Michael and told him not to be too upset about Wayne's comment because it was just a casual remark. Michael explained that he was offended not only because Wayne called him a bore, but because Wayne wasn't taking the presentation seriouly enough. After all, the presentation made up part of their grade, and therefore he wasn't reacting inappropriately.

Michael was still a little upset when he told his girlfriend, Sue, about the meeting after school. Sue suggested they should go to see a play which had just opened. She knew that would cheer Michael up because he loves the performing arts and always tries to attend different kinds of performances whenever he can. They ran into Sidney and Lydia on campus and they joined them. After the play, the four decided to go for a drink and something to eat. They began talking about the play when they arrived at a restaurant near the theatre. Michael praised the lead actor very highly, saying that he was one of the best actors he had seen. Sidney disagreed with Michael and said that his acting was mediocre at best and that he was surprised that Michael would think so highly of acting at that level. Michael commented that it was a matter of opinion since judgments in this area are very subjective. Lydia got a little drunk that night and at the end of the meal she insulted Michael. Michael didn't think Lydia really meant what she said so he turned to Sidney and said "I think Lydia has had a little too much to drink -- why don't you take her home." After Sidney and Lydia left, Michael asked Sue over to his place the following evening for supper. Michael loves to cook. He especially likes different ethnic cuisines. He recently learned about a new Spainish recipe and he wanted Sue to try it out with him.

In the past couple of weeks, Michael has been reconsidering his choice of major in university. He hasn't been very happy with business studies and has been thinking of switching to drama. He loves sports and takes part in basketball and a few other sports programs on campus. He usually would not miss basketball practise. However, he was so preoccupied with deciding on what to major that he forgot to go to his basketball practise a few weeks ago. Even though he knew it was a personal decision, he thought he should still talk it over with someone. Although Michael hasn't known Sidney long, he feels that he can open up and talk to him. Last week, Michael had a very long talk with Sidney in which he discussed his feelings about business studies and what he wants from life. A few days after the talk, Michael decided to change his major to drama. He is sure that some of his

[continued on the next page . . .]

friends will think that he changed major because he can't handle business studies. However, that doesn't bother him. He is very confident that he has made the right decision and that he will do very well in drama.

Some of Michael's friends soon learned about his change in major and a few of them were talking about it some days ago before class. One of them commented that Michael probably didn't have what it takes to continue in business studies. Michael entered the classroom and heard that comment. It didn't upset him because he knew it was hard for many people to understand his decision. He also thought that he couldn't possibly explain his decision to everyone, so he didn't say anything to defend it. He just pretended he hadn't heard anything, and went to the other side of the classroom and sat down. The next day, Michael contacted a local drama club. He talked to the president and when she mentioned that the club needed some people to coordinate membership, Michael offered to help contact members.

[Read this description twice, then close the folder and wait for instructions.]

Michael

數星期前， Michael 和市場研究學班裡的工作小組開會討論如何向班上其他同學和教授描述小組搜集到的資料。開會前，他考了一個期考，他認爲那期考的試題公正，同時自己考得很不錯，所以心情頗好。開會時， Michael 反對 Wayne 提議在描述資料時加插一些笑話調劑氣氛。 Wayne 回應 Michael “不要那麼死板。” Michael 告訴他說他自己不是一個死板的人。之後， Michael 在會中一直感到頗不高興。會後，小組另一成員 Gary 和 Michael 談話，叫他不要因爲 Wayne 的說話而生氣，因爲那只是一些無心的話。 Michael 解釋他生氣不只是因爲 Wayne 說他是一個死板的人，還有是因爲 Wayne 對這份功課態度不夠認真，畢竟這份功課是他們總分的一部份，所以，他的反應並無不當。

放學後， Michael 告訴女朋友 Sue 開會發生的事時還是有點不高興。 Sue 提議看一場剛上演的話劇。她知道這提議會叫 Michael 開心，因爲他喜愛表演藝術，而且總是盡量觀看各種表演。他們在校園遇見 Sidney 和 Lydia ，四人並一同去看話劇。看過話劇後，他們決定去喝酒和吃點東西。他們到達話劇院附近一間餐館後便開始談及那話劇。 Michael 十分讚賞男主角的演技，認爲他是自己所見最好的演員之一。 Sidney 並不讚成。他認爲那演員的演技極其量亦只可算是中規中舉，同時他很驚奇 Michael 竟會欣賞這等級的演技。 Michael 說這方面的見解十分主觀，大家只是意見不同。 Lydia 那晚有點喝醉，餐後竟侮辱 Michael ， Michael 認爲 Lydia 並不是有意，於是便向 Sidney 說“我想 Lydia 是喝多了一點，你何不早點送她回家。” Sidney 及 Lydia 離去後， Michael 問 Sue 第二天晚上可否到他處吃飯。 Michael 愛好烹飪，尤其喜歡各種民族食譜。他最近學會一個新的西班牙菜譜，想 Sue 和他一起試試味道。

過去數星期裡， Michael 在重新考慮應在大學主修那一科。他攻讀商科並不愉快，想轉讀話劇。他愛好運動，同時參與校內籃球及其他數個體育計劃。一般他是不會錯過籃球練習的。但是他的心思被應修讀那科的問題盤据著以至忘記數星期前的練習。他知道這是他的個人決擇，但他想還是應與人商量。雖然他和 Sidney 認識沒多久，但覺得自己可以和他坦誠相對。上星期 Michael 和 Sidney 談了很久，他說出自己讀商科的感受以及對人生的要求。他們談話後數日， Michael 決定轉讀話劇。他肯定一些朋友會想他轉系是因爲不能應付讀商科的要求。但這並不困擾他。他很有信心自己決定正確，同時攻讀話劇將會十分成功。

Michael 一些朋友很快便知道他轉系。數天前，一些朋友上課前談論此事，其中一人指出 Michael 大概是沒有能力應付商科。 Michael 進入課室時剛聽到這話，他並沒有生氣，因爲他知道很多人都很難明白他的決定。而且他想亦實在沒可能向每一個人解釋他的決定，所以他並沒有說任何話爲自己辯護。他只裝作甚麼也沒聽到，走到課室的另一邊坐下。第二天， Michael 聯絡本地一個話劇會。會長和他談話時提到會內需要有人負責會員事務， Michael 提出他可幫助聯絡會員。

〔閱讀這描繪兩次，然後閉上紙夾等候指示〕

Appendix 9

Second Open-Ended Impression Task, Recognition Memory Test and Second Inference Test

(English and Chinese versions)

Instructions

Based on both the first and second descriptions of John, please write a paragraph or so describing your overall impression of John's personality, in your own words. Your goal in this task is not to summarize or repeat the information in the two descriptions, but to give your own impression of the kind of person John probably is in general. (If you need more space, continue on the reverse side of this page.)

Instructions

Based on both the first and second descriptions of Michael, please write a paragraph or so describing your overall impression of Michael's personality, in your own words. Your goal in this task is not to summarize or repeat the information in the two descriptions, but to give your own impression of the kind of person Michael probably is in general. (If you need more space, continue on the reverse side of this page.)

Instructions

This task concerns your memory for the items of information in the first and second descriptions of John. Some of the items on the following list appeared in one of the two descriptions of John, and some did not. In the blank next to each item, enter the number 1, 2, 3, or 4 according to the following scale:

1 = I am certain the item was not in either of the descriptions.
2 = I think the item was not in either of the descriptions, but I'm not sure.
3 = I think the item was in one of the descriptions, but I'm not sure.
4 = I am certain the item was in one of the descriptions.

(Note: In some of the items taken from the descriptions, we have slightly condensed the original wording. We are testing only your ability to recognize the content of the items, not your ability to recognize the original wording.)

Refer back to this scale if you forget what the four numbers mean.

1. ______ John changed the topic to his favorite sport, golf, and started talking about various golfing techniques, and how he had won several amateur championships.

2. ______ Before John commented on his wife's suggestion for their next vacation, he neglected to consider what her reactions would be.

3. ______ Although John knows very little about doing home improvements, he gathered information and started the project himself instead of asking help from people who have experience in the area.

4. ______ John decided to ask his colleague, Derrick, for advice and suggestions.

5. ______ Although John does not think highly of George, he does not tell others how he feels.

6. ______ When George wants information about various things, he often talks to John first.

7. ______ John left early that day and everyone could tell he was very upset about the negative comment on his ability to finish the project.

8. ______ When others ask about John's work, he often only mentions problems he has had and not his accomplishments.

9. ______ John can talk about a wide range of topics with his friends because he knows a lot about many different things.

10. ______ John felt that Troy was rude and difficult to work with, and he told others how Troy had been very impolite to him even when he was asking John for help.

11. ______ John decided that he would not ask help from anyone in the company on the project.

12. ______ John seldom expresses disapproval of the company's administration policies.

13. ______ While John was talking with Derrick, who is overweight, about exercising, he failed to pay attention to what he was saying and made a remark that was very embarrassing to Derrick.

14. ______ John knows a lot about photography and he noticed that George was wrong about some of the things he said.

15. ______ Whenever John has a problem with the newly installed computer system, he often consults the manual and tries to solve it himself instead of asking people in the computer department, who are responsible for the system.

16. ______ John asked around the office to see if anyone would be able to give him advice on gardening.

17. ______ After thinking about the project for a few days, John was very doubtful whether he would be able to do an adequate job in the given time.

18. ______ While George was talking about calligraphy, John did not participate very actively in the conversation even though he is quite good at it.

19. ______ Derrick made a suggestion which John thought was very unsound and he commented that it was an absurd idea.

20. ______ Although John was upset after receiving the phone call from George, people at the office could not tell he was in a bad mood.

21. ______ John realized that the problems between him and his in-laws are quite serious and he decided to ask for advice from his friends.

22. ______ John regretted his remark about Derrick's suggestion almost immediately.

23. ______ Halfway through the party, someone insulted John in a conversation. Although John was very angry, he did not show it.

24. ______ John told his colleagues that he thought it was very unreasonable for his company to expect him to finish a complex project within such a short time.

25. ______ John sometimes wishes he could be as good an administrator as Derrick and some of his other colleagues are.

26. ______ When he was in university, in addition to his major and minor subjects, John took a wide range of other courses.

27. ______ John decided to ask people who know about household energy conservation for advice on his own project.

28. ______ Even though John is proud of his academic performance and career achievements, he seldom mentions these things to other people.

29. ______ John was unfamiliar with many things when he started the job, and although he often felt lost, he seldom asked for help from his co-workers.

30. ______ John told his friends on several occasions that he is very good at electronics even though he knows very little about the subject.

31. ______ John did not say much during the conversation because he thought there was no need for him to expose George and point out what he was doing.

32. ______ The morning after the argument with Derrick, most people in the office could tell something was wrong with John.

Instructions

This task concerns your memory for the items of information in the first and second descriptions of Michael. Some of the items on the following list appeared in one of the two descriptions of Michael, and some did not. In the blank next to each item, enter the number 1, 2, 3, or 4 according to the following scale:

1 = I am certain the item was not in either of the descriptions.
2 = I think the item was not in either of the descriptions, but I'm not sure.
3 = I think the item was in one of the descriptions, but I'm not sure.
4 = I am certain the item was in one of the descriptions.

(Note: In some of the items taken from the descriptions, we have slightly condensed the original wording. We are testing only your ability to recognize the content of the items, not your ability to recognize the original wording.)

Refer back to this scale if you forget what the four numbers mean.

1. ______ In talking to someone whom Michael met several weeks ago, Michael said that people should be open with each other in order to build meaningful friendships.

2. ______ Michael told Wayne that he was not a bore and was quite upset for the remainder of the meeting.

3. ______ Even though Sue did not ask Michael why he was late, he went ahead and explained anyway.

4. ______ Michael thought that he couldn't possibly explain his decision to change major to everyone, so he didn't say anything to defend it.

5. ______ Michael was not particularly worried about what his parents think about his changing major.

6. ______ Michael explained to his friend that he was just researching a term paper and that he wasn't interested in homosexuality.

7. ______ Michael explained that he bought the jacket on sale and it was of very good quality, so he was not spending money carelessly.

8. ______ Even though Michael knew that changing major was a personal decision, he thought he should still talk it over with someone.

9. ______ Although Michael hasn't known Sidney long, he feels that he can open up and talk to him.

10. ______ Michael was offended when one of his classmates corrected his pronunciation during a French class.

11. ______ Michael thinks that his hair is a little thin and therefore he was upset by Wayne's joke about bald people.

12. ______ Michael is very confident that he has made the right decision and that he will do very well in drama.

13. ______ Michael was in a fairly good mood because he thought the exam was fair and he had done very well on it.

14. ______ Michael thought that he should explain to his friends that he didn't turn in the paper because he was sick and not because he hadn't been paying attention to schoolwork.

15. ______ Michael entered the classroom and heard the comment his classmate made about his academic ability. It didn't upset him because he knew it was hard for many people to understand his decision.

16. ______ When Michael's friend objected to his suggestion, he reacted rather casually and did not say much to justify himself.

17. ______ One time when Sue suggested to Michael that he might need more exercise, he snapped at her.

18. ______ Michael took Nick's joke very personally because he was five pounds overweight.

19. ______ Michael does not mind talking about his relationship with his girlfriend.

20. ______ After the meeting, another member of the group, Gary, talked to Michael and told him not to be too upset about Wayne's comment because it was just a casual remark.

21. ______ Michael explained that he was offended not only because Wayne called him a bore, but because Wayne wasn't taking the presentation seriouly enough.

22. ______ Michael has spent a whole week on an assignment and he told Sidney that he is confident that he has done a very good job.

23. ______ Michael was very much bothered by Wayne's objection to his idea in the class discussion.

24. ______ Michael just pretended he hadn't heard anything his classmates said about why he changed major, and went to the other side of the classroom and sat down.

25. ______ When someone in the group made a rather rude remark to Michael, he reacted calmly.

26. ______ Michael thinks that it is important for him to explain to Gary why he started to smoke again.

27. ______ Michael is sure that some of his friends will think that he changed major because he can't handle business studies. However, that doesn't bother him.

28. ______ Michael thinks that it is necessary to make sure his friends understand that the reason he moved out of his parents' house wasn't because there are any problems between them.

29. ______ When Michael quietly sat down at the table next to some of his classmates in the restaurant, he heard part of their criticism of him regarding his decision to change major, but Michael didn't think it would help by arguing with them.

30. ______ Michael said that the presentation made up part of their grade, and therefore he wasn't reacting inappropriately.

31. ______ Michael was very hostile to Nick when he told Michael that he correctly answered several of the questions that Michael got wrong on the test.

32. ______ Michael thinks that he is going to do better than most people he knows who are in drama.

Instructions

The following pages present a number of hypothetical attributes and behaviors, and ask you to decide how likely or how frequently each attribute or behavior would be true of John. Many of these attributes and behaviors were not explicitly mentioned in either description of John; your task is to decide whether or not they would probably be true of John, based on the impression you have formed of his personality. Please answer each question by circling a number on the scale provided.

1. Imagine that John is with some friends and someone mentions a particular Mexican cultural practice. Assuming that John knows something about the topic, would he not tell the others about it?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

2. Imagine that John won a 100-meter race in a competition when he was in university. Would very few spectators have remembered John shortly after the competition?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

3. Does John dislike taking part in social activities?

Never 1 2 3 4 5 6 7 8 9 Very frequently

4. Does John enjoy a busy social life?

Never 1 2 3 4 5 6 7 8 9 Very frequently

5. Does John argue with others?

Never 1 2 3 4 5 6 7 8 9 Very frequently

6. When John decides to keep something secret, would he mention anything about it to anyone?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

7. Does John's facial expression reflect his mood?

Never 1 2 3 4 5 6 7 8 9 Very frequently

8. Does John stand out in a group?

Never 1 2 3 4 5 6 7 8 9 Very frequently

9. Would John know the names of the most popular science fiction writers?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

10. Does John regularly see his friends and relatives?

Never 1 2 3 4 5 6 7 8 9 Very frequently

11. Would John enjoy others praising him?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

12. Imagine that the company's vice president, Mr. MacLeod, does not know that John is a good photographer, and Mr. MacLeod's daughter is getting married soon. Would John offer to take a portrait of the couple as a wedding present, because he knows Mr. MacLeod would be surprised by his photography skills?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

13. Imagine that John was occupied by a project when he was asked to draft a contract for a big account. Would John ask his colleagues to help him?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

14. Would John observe a person for a period of time before making friends with the person?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

15. Does John like to help others with little things?

Never 1 2 3 4 5 6 7 8 9 Very frequently

16. Does John avoid attracting attention to his achievements?

Never 1 2 3 4 5 6 7 8 9 Very frequently

17. Would John enjoy spending time in different countries?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

18. Does John feel reluctant to take part in discussions of topics he knows something about?

Never 1 2 3 4 5 6 7 8 9 Very frequently

19. Would John be willing to get involved with others' affairs?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

20. Imagine that John has learned in the news about an organization raising money for children in underdeveloped third world countries. Assume that John is interested in donating to that organization. Would John do so anonymously without letting others know?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

21. Imagine that John is attending a wedding banquet and he only knows a few people there. Would John choose a quiet spot to sit instead of trying to meet some of the people there?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

22. Would John think that his colleagues do better jobs than he does?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

23. Would John enjoy hiking?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

24. Does John love compliments?

Never 1 2 3 4 5 6 7 8 9 Very frequently

25. Imagine that John won a competition for his company in a charity event involving businesses in the city. Would people at the event have forgotten John very soon thereafter?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

26. Imagine that John attended a university reunion. Would most of the graduates from John's program remember who he was?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

27. Imagine that a colleague recently transferred to John's department. Would John help that colleague to become familiar with work in the department?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

28. Imagine that John goes to a community forum attended mainly by people in his neighborhood. Would most of the people there know who John is?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

29. Imagine that a proposal John submitted received a very good response from the company president and John is very happy about it. Would John's friends be unable to tell that John was happy unless he told them?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

30. Imagine that John attends a parent-teacher party at his daughter's grade school. After his daughter has introduced him to all the teachers there, would few be able to remember who he is?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

31. Would one find many people who hold attitudes similar to John's among older adults?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

32. Do most of the people who have met John only a few times remember him well?

Never 1 2 3 4 5 6 7 8 9 Very frequently

33. Does John tell others what he thinks about things and people?

Never 1 2 3 4 5 6 7 8 9 Very frequently

Instructions

The following pages present a number of hypothetical attributes and behaviors, and ask you to decide how likely or how frequently each attribute or behavior would be true of Michael. Many of these attributes and behaviors were not explicitly mentioned in either description of Michael; your task is to decide whether or not they would *probably* be true of Michael, based on the impression you have formed of his personality. Please answer each question by circling a number on the scale provided.

1. Does Michael trust other people's intentions?

Never 1 2 3 4 5 6 7 8 9 Very frequently

2. When others ask for Michael's advice or suggestions, would he be reluctant to offer them whenever he could be blamed for possible negative consequences?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

3. Does Michael worry about whether his manners are proper in social situations?

Never 1 2 3 4 5 6 7 8 9 Very frequently

4. Imagine that Michael and his friends are making plans for an upcoming long weekend. Would Michael listen to what others have in mind before giving his suggestions?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

5. When others ask how school is coming along for Michael, would he suspect that they think he is not doing very well?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

6. Does Michael compromise if it would cause him even minor inconvenience?

Never 1 2 3 4 5 6 7 8 9 Very frequently

7. Does Michael dislike socializing with others?

Never 1 2 3 4 5 6 7 8 9 Very frequently

8. Would Michael be a funny person?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

9. Is Michael interested in new ideas?

Never 1 2 3 4 5 6 7 8 9 Very frequently

10. Is Michael a suspicious person?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

11. Imagine that Michael's friend, Colin, asks Michael to do him a favor. Would Michael agree without first asking Colin exactly what he wants him to do?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

12. Does Michael overreact to disagreements?

Never 1 2 3 4 5 6 7 8 9 Very frequently

13. Imagine that Michael missed the deadline for a class project because he had the flu. Would Michael think that it was unnecessary to tell his friends why he missed the deadline?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

14. Would Michael be willing to admit when he has made a wrong decision?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

15. Imagine that Michael and some friends are thinking of taking a hiking trip. Assume that Michael has in mind a few places where they can go for the trip. Would Michael not make any suggestions because he does not want to be responsible if his friends do not like the destination when they get there?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

16. Imagine that Michael is talking to a person who is handing out anti-abortion pamphlets, when a friend sees him and walks over. Would Michael think it was unnecessary for him to tell his friend what he and the anti-abortion supporter were talking about?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

17. Does Michael question his academic abilities?

Never 1 2 3 4 5 6 7 8 9 Very frequently

18. Imagine that Michael has to drop a course because of a conflict in his timetable. Would Michael think that there is no need for him to explain to his friends why he dropped the course?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

19. Would Michael enjoy watching ballet?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

20. Imagine that before the start of a class, some of Michael's classmates are talking about the issue of human rights in third world countries. Assuming that Michael has some definite ideas on the issue. Would Michael join in and share his opinions?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

21. Does Michael believe that most of his friends will probably achieve more than he will?

Never 1 2 3 4 5 6 7 8 9 Very frequently

22. Imagine that Michael is taking part in a class discussion and a classmate points out that there are problems with one of Michael's ideas. Would Michael be offended?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

23. Would Michael be upset when people who are close to him occasionally fail to pay him enough attention?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

24. Does Michael enjoy talking to people at parties?

Never 1 2 3 4 5 6 7 8 9 Very frequently

25. Would Michael spend much of the weekend watching various sports programs?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

26. Does Michael have difficulty making friends?

Never 1 2 3 4 5 6 7 8 9 Very frequently

27. Imagine that Michael has just turned in a term paper. Would Michael be confident that he will get a very good grade on the paper?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

28. Imagine that Michael has spent a long time preparing for a mid-term exam. Would Michael worry that he might not do well on the exam?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

29. Imagine that Michael is with his girlfriend, Sue, at her first high school reunion. Would Michael feel hurt if Sue paid most of her attention to her old school friends?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

30. Would Michael not be offended by people talking about his minor shortcomings?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

31. Imagine that Michael is talking with a representative of a homosexual rights group in front of the group's office, when a friend approaches. Would Michael try to explain to his friend what he was doing there?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

32. Would Michael not mind working in the kitchen of a restaurant for a summer job?

Very unlikely 1 2 3 4 5 6 7 8 9 Very likely

33. Does Michael do things that he regrets later?

Never 1 2 3 4 5 6 7 8 9 Very frequently

指示

同時根據John的第一及第二個描繪，請用您自己的措辭寫一段左右的文字形容您對John的性格的全面印象。您做這件工作的目標不是概述或重複這兩個描繪中的資料，而是提出您自己對John可能大概是那類人的印象。（如您需要更多空位，在這頁反面繼續。）

指示

同時根據Michael的第一及第二個描繪，請用您自己的措辭寫一段左右的文字形容您對Michael的性格的全面印象。您做這件工作的目標不是概述或重複這兩個描繪中的資料，而是提出您自己對Michael可能大概是那類人的印象。（如您需要更多空位，在這頁反面繼續。）

指示

這一件工作有關您對John的第一及第二個描繪中的各項資料的記憶。在以下列出的項目中，有一些曾在John的兩個描繪的其中一個出現過，而有一些卻沒有。按照以下尺度，在每個項目旁的空白處填上1，2，3或4：

1= 我肯定這一項目是不在任何描繪裡的。
2= 我認爲這一項目是不在任何描繪裡的，但我不能確定。
3= 我認爲這一項目是在其中一個描繪裡的，但我不能確定。
4= 我肯定這一項目是在其中一個描繪裡的。

（按：我們略爲縮短了其中一些在描繪中抽出來的項目的原文。我們只想考驗您辨認各項目的內容的能力，而不是您辨認原文的能力。）

如您忘記那四個數字的意思，參考以上等級。

1.______ John把話題轉到他最喜愛的哥爾夫球運動，他談及多種不同的哥爾夫球技巧，及自己如何贏了數個業餘比賽。

2.______ John在評論太太對下一個假期的提議前，他忽略了顧及太太可能有的反應。

3.______ 雖然John對改善家居環境的工作認識很少，但他去搜集資料，自己動手做，而不向有改善家居環境經驗的人求助。

4.______ John決定向同事Derrick徵求意見及提議。

5.______ 雖然John對George沒有什麼好感，但他並沒有向別人說出自己的觀感。

6.______ 當George想知道有關各方面的資料時，他經常都先和John商量。

7.______ John那天很早便離開。大家都看得出他爲那些否定他有能力完成那計劃的說話而十分不高興。

8.______ 當別人問及John的工作時，他常常只是提及他遇到的問題而不談他的成就。

9.______ John和朋友的話題很廣泛，因爲他對很多不同的事物都很有認識。

10.______ John覺得Troy傲慢粗魯，很難和他合作。他告訴其他人Troy向他求助時亦十分沒禮貌。

11.______ John決定不會要求任何同事協助完成那項計劃。

12.______ John極少提出反對公司的行政措施。

13.______ John和過重的Derrick在談論做運動時，一時不留神，說了一些令Derrick很尷尬的話。

14.______ John對攝影很有認識。他發覺一些George談及的事是錯的。

15.______ 每當John對新置的電腦系統有問題時，他常參考電腦手冊嘗試自己解決問題，而不去問那些在電腦部門負責那系統的人。

16.______ John在公司四處問別人能否給他點種植菜園的建議。

17. _____ John考慮關於那計劃數日後，十分懷疑自己能否在規定的時間內做出令人滿意的成績。

18. _____ 雖然John頗為擅長書法，但當George在談論這方面時，John並沒有積極參與談話。

19. _____ Derrick提出了一個John認為十分不好的建議。John評說那是一個荒謬的意見。

20. _____ 雖然John收到George的電話後感到不高興，但在辦公室其他的人卻看不出他的情緒不好。

21. _____ John明白到他和外父母之間的問題頗嚴重，他決定向朋友求教。

22. _____ John幾乎立刻對自己評論Derrick的提議的話感到後悔。

23. _____ 聚會中途有人在談話中侮辱John。雖然John十分憤怒，但他並沒有表露出來。

24. _____ John告訴同事說他認為公司預期他在如此短時間內完成一個那麼複雜的計劃，實在過份。

25. _____ John有時希望自己能做到好像Derrick及其他一些同事那樣好的行政人員。

26. _____ 讀大學時，除了主修及副修科目外，John修讀的其他科目範圍很廣。

27. _____ John為了自己的家居節省能源計劃決定向在這方面有認識的人求教。

28. _____ 雖然John對自己的學業及事業感到自豪，但他很少向別人提及這些事。

29. _____ 初上班時，John對很多事都不熟悉。雖然辦事時往往不知從何入手，但他很少向同事求助。

30. _____ John曾數次告訴他的朋友說自己對電器很有研究，但他其實對這方面認識很少。

31. _____ John並沒有說什麼，因為他認為自己沒有必要揭穿George的所為。

32. _____ John和Derrick爭吵後第二天，大部份在辦公室的人都看得出John有點不妥。

指示

這一件工作有關您對Michael的第一及第二個描繪中的各項資料的記憶。在以下列出的項目中，有一些曾在Michael的兩個描繪的其中一個出現過，而有一些郤沒有。按照以下尺度，在每個項目旁的空白處填上1，2，3或4：

1= 我肯定這一項目是不在任何描繪裡的。
2= 我認爲這一項目是不在任何描繪裡的，但我不能確定。
3= 我認爲這一項目是在其中一個描繪裡的，但我不能確定。
4= 我肯定這一項目是在其中一個描繪裡的。

（按：我們略爲縮短了其中一些在描繪中抽出來的項目的原文。我們只想考驗您辨認各項目的內容的能力，而不是您辨認原文的能力。）

如您忘記那四個數字的意思，參考以上等級。

1._____ Michael和一個他數星期前認識的人談話時，說及人與人之間爲了要建立有意義的友誼，大家應坦誠相對。

2._____ Michael告訴Wayne說自己不是一個死板的人。之後，Michael在會中一直感到頗不高興。

3._____ 雖然Sue沒有問Michael爲什麼遲了，他還是向她解釋。

4._____ Michael想他沒有可能向每一個人解釋自己改變主修科目的決定，所以他沒有說任何話爲自己辯護。

5._____ Michael並不太擔心父母對他改變主修科目的想法。

6._____ Michael向他朋友解釋說自己只是在爲一份論文做研究，而不是對同性戀有興趣。

7._____ Michael解釋說那外套是減價時買的，而且質料很好，所以他並沒有胡亂揮霍金錢。

8._____ 雖然Michael知道改變主修科目是他的個人決擇，但他想還是應與人商量。

9._____ 雖然Michael和Sidney認識沒多久，但他覺得自己可以和他坦誠相對。

10._____ 當法文班上其中一個同學更正Michael的發音時，Michael被觸怒了。

11._____ Michael認爲自己的頭髮比較稀薄了一點，所以當Wayne說了一個有關禿頭人的笑話時他感到生氣。

12._____ Michael很有信心自己決定正確，同時攻讀話劇將會十分成功。

13._____ Michael心情頗好，因爲他認爲那個考試的試題公正，同時自己考得很不錯。

14._____ Michael認爲他應該向朋友解釋自己是因病沒有交論文，而不是對學業漫不經心的原故。

15._____ Michael進入課室時剛聽到他的同學說有關他的學業能力的話，他並沒有生氣，因爲他知道很多人都很難明白他的決定。

16._____ 當Michael的朋友反對他的建議時，他反應若無其事，同時沒有說些甚麼爲自己辯白。

17._____ 有一次Sue建議Michael或許要多運動時，他搶白她。

18._____ Michael認爲Nick的笑話是人身攻擊因爲他超過標準體重五磅。

19._____ Michael並不介意談及他和女朋友之間的關係。

20._____ 會後，小組另一成員Gary和Michael談話叫他不要因爲Wayne的説話而生氣，因爲那只是一些無心的話。

21._____ Michael解釋他生氣不只是因爲Wayne説他是一個死板的人，還有是因爲Wayne對那份功課態度不夠認真。

22._____ Michael花了整整一星期做一份功課，他告訴Sidnay説他有信心那份功課做得很好。

23._____ Michael因爲Wayne在班上的討論中反對自己的見解而感到十分煩擾。

24._____ Michael只裝作沒聽到他的同班同學説他爲甚麼要改變主修的話，走到課室的另一邊坐下。

25._____ 當小組中某人向Michael説了些甚爲粗魯無禮的話時，Michael反應冷靜。

26._____ Michael認爲重要的是向Gary解釋自己爲什麼再開始吸煙。

27._____ Michael肯定一些朋友會想他轉系是因爲不能應付讀商科的要求，但這並不困擾他。

28._____ Michael認爲有必要肯定他的朋友明白他搬離父母不是因爲他們之間有甚麼問題。

29._____ 在餐館中，當Michael輕輕地坐在他的一些同學隔鄰的檯時，他聽到一部份對自己改變主修的批評，但Michael認爲和他們吵架無補於事。

30._____ Michael説那份向班上同學及教授描述資料的功課是他們總分的一部份，所以，他的反應並無不當。

31._____ Nick告訴Michael説他在測驗裡答對了數條Michael答錯了的題目時，Michael十分敵視他。

32._____ Michael認爲他會比大部份他認識在攻讀話劇的人讀得更好。

指示

接著的數頁是一些假定的品性及行爲。判斷John會有每一項品性及行爲的可能性或次數。其中很多的品性及行爲並沒有明確地在任何一個John的描繪中被提及過，您的工作是根據您對John的性格已有的印象，判斷究竟John是否會可能有這些品性及行爲。回答個別問題時，請在所提供的尺度上圈一個數字。

1. 試想像John和些朋友一起，有人提及一個墨西哥習俗。假設John對這話題有所認識，他會告訴其他人自己所知的嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

2. 試想像John唸大學時曾贏過一場100公尺賽跑。賽後不久仍記得John是誰的觀眾會爲數極少嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

3. John會不喜歡參與社交活動嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

4. John會樂於過煩忙的社交生活嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

5. John會和別人爭論嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

6. 當John決定將一件事保守秘密時，他會對任何人提及任何有關那秘密的事嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

7. John的面部表情會反影他的情緒嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

8. John會在人羣中特出嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

9. John會知道最受歡迎的科幻小說作家的名字嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

10. John會定期和親友會面嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

11. John會樂於被人稱讚嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

12. 試想像公司副總裁Mr. MacLeod的女兒快要結婚，而他並不知John是個好攝影師。John會因爲知道Mr. MacLeod會對自己的攝影技術感到驚奇，所以提出替一對新人拍攝照片作爲結婚禮物嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

13. 試想像John被派爲一個大客戶草擬一份合約時，正忙於另一個計劃。John會請求同事幫忙嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

14. John會觀察一個人一段時間後才和那人交朋友嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

15. John會喜歡在小事上幫助別人嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

16. John會避免叫別人注意自己的成就嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

17. John會樂於到不同國家消磨時間嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

18. John會不願意參與討論一些他有所認識的事情嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

19. John會願意介入別人的事務嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

20. 試想像John從新聞得知一個團體正爲第三世界中的未開發國家的兒童籌款。假設John有意思捐款給這個團體。John會匿名捐款不讓別人知道嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

21. 試想像John在出席一個婚宴，他只認識數個在場的人。John不會嘗試去認識一些在場的人，反而會選擇在比較清靜的一角坐下嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

22. John會認爲他的同事辦事比他更好嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

23. John會樂於遠足嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

24. John會喜愛別人讚賞他嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

25. 試想像John在一次市內商業慈善活動中代表公司贏了一項比賽。那項比賽在場的人事後很快便會忘掉John是誰嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

26. 試想像John參加一個大學老同學聚會。大部份和John同一課程的畢業生會記得他是誰嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

27. 試想像一個同事最近被調派到John的部門。John會幫助那同事熟習部門內的工作嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

28. 試想像John到一個社區公眾集會，出席的人多來自他住處的鄰近地區。大部份在場的人會知道John是誰嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

29. 試想像公司總裁對John遞交的一個計劃書反應很好，因此John十分高興。除非John告訴他的朋友，他們會不知道John高興嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

30. 試想像John參加他女兒就讀小學的家長教師聚會。他女兒介紹過他給所有在場的教師認識後，沒幾個會記得他是誰嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

31. 很多年紀比較大的成年人都會抱有和John的相近的態度嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

32. 大部份只見過John數次的人都會很清楚記得他是誰嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

33. John會告訴別人他對人對事的看法嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

指示

接著的數頁是一些假定的品性及行爲。判斷Michael會有每一項品性及行爲的可能性或次數。其中很多的品性及行爲並沒有明確地在任何一個Michael的描繪中被提及過，您的工作是根據您對Michael的性格已有的印象，判斷究竟Michael是否會可能有這些品性及行爲。回答個別問題時，請在所提供的尺度上圈一個數字。

1. Michael會信任別人的意圖嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

2. 別人徵求Michael的意見或提議時，每當他認爲萬一有不良後果，他們或許會歸咎於他時，他會不願意提出自己的意見或提議嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

3. Michael會擔心自己在社交場合中的舉止是否恰當嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

4. 試想像Michael和一些朋友正在計劃如何渡過快要來臨的長周末。Michael會聽過別人的意見後才說出自己的提議嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

5. 當別人問Michael學校功課如何時，他會懷疑他們在想他的功課不大好嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

6. Michael會接受一些只會帶給他些微不便的折衷辦法嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

7. Michael會不喜歡與人交際嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

8. Michael會是一個好玩的人嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

9. Michael會對新見解有興趣嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

10. Michael會是個多疑的人嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

11. 試想像Michael的朋友Colin請求Michael幫忙。Michael會在還未問清楚Colin要自己做些甚麼之前便答應嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

12. Michael會因別人和他意見分歧而反應過劇嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

13. 試想像Michael因爲感冒沒有準時交一份課。Michael會認爲沒有需要告訴朋友他爲何沒有準時交功課嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

14. 當Michael決定錯誤時，他會願意承認嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

15. 試想像Michael和一些朋友在考慮去遠足旅行。假設Michael心目中有數個他們可去旅行的地點。Michael會因爲怕他的朋友到達時不喜歡目的地而要負責，所以不提出任何意見嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

16. 試想像Michael和一個正在派發反墮胎傳單的人談話時，一個朋友看見他並向他走過去。Michael會認爲毋需要告訴那朋友自己和那反墮胎支持者在談些甚麼嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

17. Michael會懷疑自己的學業能力嗎？

從來不會 1 2 3 4 5 6 7 8 9 時常會

18. 試想像Michael因爲時間表上的衝突而要退讀一科。Michael會認爲無需要向朋友解釋自己爲甚麼退讀那一科嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

19. Michael會樂於看芭蕾舞嗎？

很不可能 1 2 3 4 5 6 7 8 9 很可能

20. 試想像上課前，Michael的一些同班同學在談論第三世界國家的人權問題。假設Michael對這方面有一些明確的意見。Michael會加入他們，提出自己的見解嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

21. Michael會相信大部份的朋友可能會比自己更有成就嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

22. 試想像Michael正在參與班中的討論時，一個同學指出Michael的一項意見有問題。Michael會被觸怒嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

23. 當和Michael親近的人偶然疏忽他時，他會生氣嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

24. Michael會樂於在聚會中與人傾談嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

25. Michael會在周末花大部份時間收看電視各種體育節目嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

26. Michael交朋友會有困難嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

27. 試想像Michael剛交了一份論文。Michael會有信心拿得高分嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

28. 試想像Michael用了很長時間準備一個期考。Michael會擔心自己或許會考得不好嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

29. 試想像Michael和女朋友Sue在她第一次的高中老同學聚會中。如果Sue將大部份注意力放在老校友身上，Michael會感到傷心嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

30. Michael不會因爲別人談及他的一些小缺點而生氣嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

31. 試想像Michael正在和一個同性戀權利組織的代表在該組織辦事處前談話時，一個朋友迎面而來。Michael會盡量向那朋友解釋他在那裡幹甚麼嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

32. Michael會不介意暑假在餐館廚房工作嗎？

很不可能　1　2　3　4　5　6　7　8　9　很可能

33. Michael會做一些自己會後悔的事嗎？

從來不會　1　2　3　4　5　6　7　8　9　時常會

Appendix 10

Vocabulary Test for English Monolinguals

Is English your first (native) language? ______ Yes
______ No

Please give a one- or two-sentence definition of the following terms:

Self-conscious:

Defensive:

Well-rounded:

Appendix 11

Vocabulary Test and Language History Questionnaire for Chinese-English Bilinguals

請為下列形容詞寫下一至兩句的定義：

自卑：

深藏不露：

圓滑：

Please give a one- or two-sentence definition of the following terms:

Self-conscious:

Defensive:

Well-rounded:

Language History Questionnaire

1. At what age did you learn (or begin learning) Chinese? ______

2. Please rate your overall fluency in Chinese (speaking, reading, writing):

1	2	3	4	5	6	7	8	9
not very fluent				moderately fluent				extremely fluent

3. Which dialect of Chinese do you speak? ______________________________

4. At what age did you learn (or begin learning) English? ______

5. Please rate your overall fluency in English (speaking, reading, writing):

1	2	3	4	5	6	7	8	9
not very fluent				moderately fluent				extremely fluent